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FROM THE EDITORS OF AMERICAN SURVIVAL GUIDE
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*"In any moment of decision, the best thing
you can do is the right thing, the next best
thing is the wrong thing, and the worst thing
you can do is nothing."* —THEODORE ROOSEVELT

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MODERN PIONEER

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PHOTO BY BRIAN BROWN



PHOTO COURTESY OF ALDOLEOPOLD.ORG

Nature's Greatest Hero: Aldo Leopold

A passion of mine is to read about wildlife science and how it relates to land management. Through careful study and interpretation, I've found that you can't have one without the other. Too many wild animals in a given habitat area simply means trouble, and it's the job of the responsible scientist to determine the population density that is best for a given section of land.

This principle is often referred to as "the holding capacity." Basically, when a population exceeds the holding capacity, animals become prone to malnutrition (or starvation), increased predation and can impact plant-growing patterns in a negative way.

During the pre-Theodore Roosevelt days, when market hunting was annihilating our game herds, there was little knowledge, or "structure," about the science of creating healthy, balanced populations of game. In other words, Roosevelt and other dedicated sportsmen were instrumental in protecting our wild critters from slaughter, but managing them on a scientific level was still somewhat of a mystery.

That is, until noted naturalist, forester, wildlife manager and hunter Aldo Leopold came along.

For most of my tenure as an outdoorsman, sadly, I knew little about Leopold. However, once I began learning about wildlife management and forestry, that completely changed. His work is saturated throughout these fields. Because of Leopold's fine articles and books, it became poignantly obvious that he was wise well beyond his years. His philosophy regarding nature, his intricate insight into meaningful ways of managing game and his ethics as a hunter were quite remarkable to me.

Here are three attributes that impress me the most about this man—who held our land, our animals and our sport in very high moral regard.

Land Is Special, Land Is Community

Leopold was highly intelligent, practical and perceptive, and he believed that bonding with the land was the best approach to conserving it.

As a visionary, he liked to perceive the big picture and the long-term impacts man could have on his environment, as well as on the wild animals living within it. Basically, Leopold believed heavily in using the land for farming, ranching, grazing and for hunting and recreation. However, he did not believe in over-use and long-term destruction. Rather, he believed in true sustainment, which could only come through treating the land and nature as a community we are innately a part of.

"Conservation is a state of harmony between men and land," wrote Leopold. "By land is meant all of the things on, over, or in the earth. Harmony with the land is like harmony with a friend; you cannot cherish his right hand and chop off his left. That is to say, you cannot love game and hate predators; you cannot conserve the waters and waste the ranges; you cannot build the forest and mine the farm. The land is one organism."

Leopold thought that if we are to treat the land properly, we need to understand it intimately, to know how it works as a whole. Otherwise, it would be difficult to sustain it and reap any of its ongoing economic benefits.

Deep Appreciation for Wild Places

Hired on by the U.S. Forest Service straight out of Yale University Forestry School, Leopold was assigned to the forest regions of Arizona and New Mexico, which were still only territories at that time. He was to explore and map the regions, as well as manage the growing populations of predators in the area. This meant traveling across harsh, untamed Southwestern backcountry while on foot and horseback. Anyone who could do such a thing, as a job, in the unforgiving Southwestern mountains was certainly tougher than most. He was part scholar and part cowboy—qualities of his that were also hard not to commend.

These backcountry experiences left an indelible mark on Leopold. He had concern for less wild space and fewer wild ecosystems. This prompted him to initiate many monumental actions regarding how we manage our natural resources today. He wrote the first comprehensive management plan for the Grand Canyon, the first Forest Service game and fish handbook and the first proposal to delegate a large chunk of forest in New Mexico as "wilderness," which eventually led to the development of the Gila National Wilderness.

Today, thousands of hikers, backpackers, anglers and hunters get to enjoy this wild and undefiled region of New Mexico that is rich in habitat diversity and game—all thanks to Leopold's vision, forethought and initiative. Of course, this undertaking led to other designated wilderness areas in our country. As a wilderness hunter and explorer myself, I cannot thank him enough for that.

True Hunter at Heart

Perhaps my favorite quality of Leopold was his view of hunting and game management. He became a Boone & Crockett Club member in 1923, and he wrote a book called *Game Management*, a first of its kind that led to a new scientific approach to managing our wildlife and their habitats. Today, Leopold's ideas serve as the backbone of our states' wildlife biology programs—once again highlighting his tremendous intelligence and vision for the future.

Beyond all this, Leopold loved proper sportsmanship. He began hunting at a very early age under his father's wing. He learned to value fair-chase hunting, admiring the utter skill that goes into pursuing game, particularly with basic archery equipment. He liked to think of hunting as honing one's ability to become a better woodsman and marksman and to know the natural world better. He did not believe in the over-use of hunting "aids" that often whittled down on these critical aspects of being a real predator of the land.

Most importantly, Leopold found time to influence other hunters and archers about his beliefs (through his eloquent writing ability) and to also help popularize archery and bowhunting during the 1920s, '30s and '40s. He actually helped launch the first Wisconsin archery-only hunting season in 1934.

In my mind, few people have done more good for the betterment of our wild landscapes and wildlife than Leopold. He was, indeed, a remarkable man and nature pioneer.


JOE BELL

news

Pope & Young Club Gets New Executive Director

MODERN PIONEER AND BOW AND ARROW HUNTING magazines' very own Editor Joe Bell has moved on to greener pastures: He's taking over the role of executive director for the Pope & Young Club, for which he will lead the club's operations in pursuit of its mission.

"We are very excited to have Joe on board leading the club," said Jim Willems, president of the Pope & Young Club. "As a 14-year member, Joe understands the importance of our mission and what it will take to ensure a strong future for bowhunting in North America."

Joe, who has been bowhunting since childhood, will oversee administration, finances and a strategic plan for the club, as well as marketing, fundraising and recruiting new members.

"As a longtime archer, bowhunter and member of the Pope & Young Club, I am honored to accept this new position," Joe said. "I will walk with all those bowhunting greats who came before me to help shape this sport into all that it is today. I want to give back—just as they unselfishly did—and keep the torch lit with the same degree of motivation and truth as they did back when it all began. Being a part of the Pope & Young Club carries a lot of significance. The club's early founders and supporters were responsible for getting the first archery-hunting

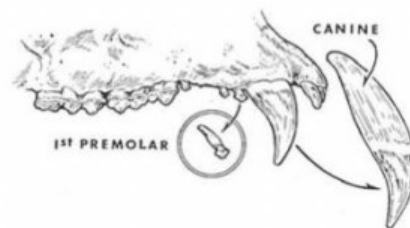
seasons off the ground. They proved themselves to be true hunter-conservationists who effectively put their time and money to work by organizing efforts to support bowhunting as a useful and respectable tool for managing wildlife, while also helping fund projects to improve wildlife research and habitat restoration. Simply put, these pioneers are my heroes, and anyone who cares about bowhunting and wildlife should feel the same.

"The Pope & Young Club means more to me than a recordbook of trophies," continued Bell. "It's an organization that was put in place solely for the care of bowhunting, to foster fair-chase hunting tactics and to help preserve wildlife and habitat for generations to come. These are noble causes, and every bowhunter out there should support them. There is a lot of soul to our sport, and without effective education and protection, it could all be lost. The club was founded with high moral standards—all for the purpose of bettering the image of bowhunting. My plan is to uphold these principles while pouring out my passion for the sport in the most meaningful way. My hope is to make the club more visible and desirable—a must-have membership for every bowhunter out there."

The Tooth Tells All

WHAT CAN YOU LEARN FROM A TOOTH? Well if the tooth belongs to a bear—a lot.

Using a microscope, scientists are able to count what look like rings in a cross-section of a tooth root—most always in the premolar. The outer part of the root, called "cementum," adds a new layer each year, creating lines in the tooth: a dark one that forms during hibernation and a light one that forms during growing season.



From knowing the bear's age, as well as its sex, scientists can make educated guesses about how the bear population is faring. They can even detect when and for how long a mother bear was nursing her cubs. The spacing between the dark lines indicates how much a bear's teeth were growing and how they were using the calcium in their bodies.

For instance, before bearing children, a mother bear's cementum layers are very spaced out. But, when she has her babies, the ring spaces become narrower. This is because the bear is using most of the calcium in her body to produce milk for her cubs, rather than cementum for her teeth.

MODERN PATTERNS FOR MODERN RIFLES

Deep South Precision Inc. has joined forces with Hass Outdoors to bring hunters a new line of modern sporting rifles designed for near invisibility. Buyers can find the DSP-15 model rifle, .223 Remington, 300 Blackout and .308 in Mossy Oak Bottomland, Brush and Break-Up Country patterns. By adding the personal touch of features such as textures on the front of the mag and customizing the trigger guards, hunters can truly make their rifles one of a kind. Contact www.dsparmory.com for more information. **MP**

gear

SHOWCASE



SHARP JUST GOT SHARPER

Make your blade sharp and keep it that way with the precision and ease of the Work Sharp Guided Sharpening System (GSS).

What's better than a good, old-fashioned stone? How about a sharpener that sets up your angle and pivots with the contour of your blade? With the GSS, when sharpening the blade perpendicular to the abrasive, any knife can be sharpened with ease, because the abrasive will respond to the blade profile and create very consistent sharpening through its entire length.

Through use of a magnetic attachment, abrasive blades can be easily swapped with, or replaced altogether by, a ceramic rod with three sharpening positions—perfect for sharpening more difficult shapes such as fish hooks and deep-grooved blades.

Each kit comes standard with coarse and fine abrasives (but it can be upgraded to fit extra-fine and extra-course options), as well as a leather strop, for an even sharper finish. Kit includes 320- and 600-grit abrasives and ceramic rod. **MSRP \$59.95**

> worksharptools.com

OFF-ROADING FOR THE HUNTER

Efficiency is key for this off-roading vehicle. The Commander has been outfitted with hunters in mind—packing key essentials for a day in the field, including water-dipped Mossy Oak Break-Up Country Camo, gun boots, a winch, full skid plate and a two-piece, full hard roof.

The Commander's winch hauls up to 4,500 pounds with a full-sealed motor, making it perfect for pulling out big game from the field. The Rotax V-Twin engine is eight-valve, produces 85 horsepower and features a progressive throttle.

Other features include 27-inch Maxxis tires on 14-inch black wheels, cargo box bedrails, dual-level cargo box and 1,500 pounds of towing capacity. **MSRP \$18,849**

> can-am.brp.com



PACK AND ROLL

This camouflaged, water-resistant, polyester roller bag with heavy-duty wheels and reinforced stitching is ready for travel. The Bear 6000 offers 6,000 cubic inches of storage space for lots of clothes and hunting gear but weighs only 9.5 pounds. Need more room? The daisy chains at the front of the bag make it easy to attach additional gear. The bag comes with a retractable handle and three carry handles, making transportation simple. Available in Realtree Max4, Realtree AP HD and Mossy Oak Break-Up Infinity. **MSRP \$199.99**

> spgcompany.com

STAY WARM, STAY SCENT FREE

Constructed from materials designed to offer its wearer imperative warmth, water and wind resistance, as well as a barrier to mask their human scent, the ColdGear is built for outdoor action.

This jacket even features a 100 percent polyester "silent shell" built to help you maneuver without noise in order to reduce chances of detection during those close-encounter situations. The jacket is also harness compatible, padded with insulation and features secure pockets and a magnetized zipper. Available in Realtree Xtra, Velocity and Mossy Oak Treestand/Velocity patterns. **MSRP \$169.99**

> ua.com





TURKEY HUNTER

You'll be filling your tags in no time with the SXP Turkey Hunter. This shotgun features a synthetic stock and the new Mossy Oak Break-Up Country camo pattern. Its 24-inch barrel comes with an adjustable fiber-optic sight.

With four massive rotary lugs, the SXP boasts support, strength and solid lockup to the barrel. A hard chrome chamber and bore make surfaces highly resistant to wear and corrosion.

Other features include a recoil pad, a proven choke tube system and .742 back-bored barrel technology to provide consistent shot patterns necessary to put the bird on the table. **MSRP \$519.99**

> winchesterguns.com



NO SCENT, NO PROBLEM

If you want to stalk your prey undetected, you'd better leave your own scent behind. Max Body Soap and Shampoo uses activated odor-scrubbers to aggressively attract and attack bacterial odors generated by humans and also neutralizes a wide range of environmental odors for quicker, stronger, longer protection.

This product contains honeyquat for increased hydration and aloe vera to leave hair and skin smooth. It's also biodegradable and environmentally friendly.

MSRP \$16.99

> hunterspec.com



AIR POWER

If you'd like to have the fun of a kayak without the pain of transporting it, perhaps it's time to consider an alternative to the hard-plastic or wooden versions. The Mirage i11S inflatable kayak is a lightweight design, featuring two air chambers on each side and drop-stitched center chamber to provide the stability needed for recreational use.

The i11S comes with a fin for increased tracking and stability. It is easily inserted into the built-in slot on the bottom of the hull. Bungee tie-downs in the rear hold down your fishing gear or cooler, and the skid pad in the front lets the rider stand up to cast a line.

Riders can steer themselves with fingertip rudder control. The kayak is composed of 1000 denier PVC hull and rubberized undersides and features easy-to-grip carrying handles that facilitate smooth launch, landing and portage. **MSRP \$1,999**

> hobiecat.com



EYES ON THE PRIZE

Keeping your eyes safe is crucial, but it doesn't hurt to look good in the process. Wiley X tumbled and polished frames feature double-injected rubber temple tips for a secure, no-slip fit during rigorous outdoor activities.

A rubberized nosebridge with an adjustable wire core provides added comfort and allows each wearer to adjust the viewing angle for optimal sight levels.

These frames are also designed to make it easy for shooters to interchange a variety of 2.2mm lenses, thereby obtaining the best lens tint and light transmission for varying shooting conditions. The frames are available in single- and multiple-lens packages and include five colors: smoke, clear, yellow, persimmon and purple. **MRSP \$13.99**

> wileyX.com



Rattle Up a Buck

How to call in deer the old-fashioned way > By **Darryl Quidort**

I don't remember if I saw him first or heard him coming. I just remember that big 8-point trotting purposefully straight toward me. With as little motion as possible, I dropped the rattling horns onto the seat of my tree stand and reached for my bow. At the same time, I turned around to get into position for a shot at the fast-approaching buck. Then, he pulled to a stop, looking right at me. I froze.

"Uh-oh," I thought. "Busted!"

After a long stare, the buck dropped his head, turned and started walking to my left. He circled slowly while keeping a wary eye on me.

"*Not* busted," I decided. He was just a smart, old buck that knew exactly where the sounds of clashing antlers originated but couldn't locate the "fighting bucks."

He wasn't quite downwind of me when he turned and walked right to me. Now in position to draw my bow, I held off, because the buck presented only a head-on shot at 15 yards and closing. At 10 yards, I still had no shot and realized he was coming to the exact tree from which he had heard the rattling of antlers. He finally stopped when he was fewer than 5 yards from the base of my tree.

Now, he was too close! Should I try the straight-down shot or wait for him to make the next move?

A Time-Honored Technique

I've been calling deer by rattling antlers for many years, yet each season seems to be another learning experience. During some bow seasons, I have rattled in several bucks. It would seem I have it all figured out.

But, interestingly enough, during other years, it doesn't seem to work, and the bucks don't respond to my rattling efforts. I guess there are too many variables to figure out: weather conditions, buck-to-doe ratios, hunting pressure, phase of the rut—or maybe plain, old luck.



This buck casually walked into range of the author's bow to investigate antler-rattling sounds.

So, I might as well make my disclaimer statement right now: Although sometimes antler rattling works almost like magic ... it's not. Rattling is simply another hunting method that can be used at the proper times to "make something happen." It is an aggressive form of bowhunting that is interesting and exciting and might get you a slam-dunk shot at a trophy buck. Or maybe not.

Following are some of my ideas about calling whitetail bucks by antler rattling. But remember that things always seem to be changing and that I'm still learning.

I believe a whitetail buck knows every other local buck—by scent if not by sight. There is a definite hierarchy, or pecking order, within a deer herd that is constantly changing. Each deer knows its own place in that pecking order. Dominance depends on which deer are present at the time. The young bucks with small antlers usually yield to the heavy bucks with larger headgear. Every confrontation is not a knock-down, drag-out battle, but bucks often check their weight and strength in a pushing match with other bucks. A small buck can travel with, and be tolerated by, a larger buck—as long as he knows his place and doesn't challenge the bigger buck in any way.

Why it Works

I think there might be a variety of reasons a buck responds to antler rattling. My experience shows that a buck doesn't always approach the rattling sounds with his hair standing up and his ears laid back, ready for a fight. Sometimes, a buck will sneak in as if he's walking on eggs. Some bucks come in tense and alert; others seem nervous, scared, curious or even lazy. For instance, one November a few years ago, a 6-point buck walked in, stood around for a few minutes and then bedded down about 30 yards from me—right after a loud, aggressive antler-rattling sequence.

I find it interesting that the large trophy bucks I have rattled in have all approached slowly and cautiously. They seemed to want everything just right before they committed themselves. One very large buck even stood 30 yards away in heavy cover and watched a little spike buck moving around under my tree stand, looking for the "fighting bucks." Then, the big boy circled slowly downwind and just walked away, out of my life forever.

What's Needed

My equipment for rattling up bucks is simple. I like a fairly heavy set of natural antlers



(above) Most bowshots will be taken at close range as bucks approach the antler-rattling sound of "fighting bucks."

(left) The author prefers good-sized antlers with three points for antler rattling. Notice that the brow tines have been removed to keep from pinching fingers while banging the horns together.

"I like a fairly heavy set of natural antlers with three tines on each side."

with three tines on each side. I have been successful with smaller antlers, but I think the sound carries farther when heavy antlers are used.

The antlers don't have to be a matched set. Even dropped antlers will work if they are not weathered and dead sounding when cracked together.

I remove the brow points to give me more room to grasp the antlers solidly with my gloved hands. A 2-foot-long cord tied between the burrs helps to hang them while in a tree stand or to carry them around my neck. A tried and proven set of rattling antlers soon develops a special feel. It's a confidence thing, too: You've got to have faith in them.

I suppose I could use synthetic rattling antlers, sticks or even a bag of stones to rattle up a whitetail buck. But why would I? They have no class! I have two sets of lucky rattling horns I have used for many years. They came from real deer and have brought me so much fun, excitement, success and so many memories that I will never abandon them for anything synthetic.



Tricks of the Trade

I have settled into a rattling technique in which I have great faith. I like to be set up near heavy cover. That's where most whitetail bucks spend their time. I always rattle from a tree stand. Bucks can be called from the ground, but it's very hard to get a good shot opportunity. I like to get into my stand early and let the area settle down for a while. Then, I hang my bow up within easy reach and grip the antlers tightly in my gloved hands. I start by cracking them together very hard once or twice.

After that, I mesh the points and, by twisting my wrists and forearms in opposite directions, I rattle excitedly in a pause-and-go rhythm. It actually helps to imagine a pair of bucks sparring in a pushing match. After rattling for 30 to 45 seconds, I quickly hang up the horns and get my bow ready. I'm listening all the time for the sounds of an approaching deer.

If nothing happens after five minutes, I rattle a second sequence of 30 to 45 seconds. Then, I get ready again, always watching and listening, because a buck might approach at any time. If I don't get results, I wait at least a half-hour before starting all over again. I stay alert all the time. I believe some bucks have responded a half-hour after I rattled the antlers. They may have heard the sounds and just wandered over later to see what was happening.

Quietly tickling the antlers together can also work, especially early in the season, but my experience has been that virtually all my deer have come in to hard, loud and excited rattling.

Hunting Action

Last fall, my grandson, Chance, borrowed a pair of my rattling antlers. He was in a tree stand on the edge of a nearby woodlot when he made a loud, aggressive rattling sequence. A buck immediately came trotting up to him from the woods. Because it was a small buck and had one antler broken off, Chance decided not to shoot. He hung his bow back up and watched as the little buck walked in a circle around him.

Then, Chase heard a sound behind him. Turning, he saw a huge buck that had just

crossed an open alfalfa field to investigate the rattling sounds. The big buck was now focused on the little buck. With shaking hands, Chance picked up his bow, turned and shot the deer. He watched as his buck ran back across the open field and entered the next woodlot.

We found Chance's trophy buck piled up just inside the edge of the woods. My grandson is now hooked on antler rattling as an exciting deer hunting method.

The peak of the rut, when bucks are most active, is probably the best time to rattle. However, the phase of the rut might not be as important as I once thought. I have rattled up bucks here in Michigan in October, November and December. This shows me that bucks will respond to rattling longer than I originally thought.

By far the most productive time for me is early morning during cold, dry, calm weather. The sound of the antlers carries well, and I can hear the deer approaching better under these conditions. I have experienced poor results in windy or rainy weather. Maybe the deer can't hear the sounds as well, can't locate them as well or simply don't feel very "bucky" in stormy weather.

Just about anything can happen when you take the aggressive role and make some noise. As an example, one November morning, weather conditions were perfect for antler rattling. I waited until it was light enough for me to quietly slip into my stand without using a flashlight, because I knew a buck could be very close by.

After climbing the tree, I started to pull my bow up on a cord. The recurve bow caught on a metal foot peg with a "clack" sound. I could hear the deer coming straight at me while I frantically tried to rattle my bow free. As I quickly hauled my bow up to the stand, I could see him coming out of the thick stuff. He spotted the movement as I knocked an arrow and slid to a stop fewer than 10 yards away.

A quick spine shot anchored him. Whew! I never got to rattle the antlers on that one. The buck was laying dead at the foot of my tree—and the pull-up cord was still attached to my bow.

Remember the heavy, 8-point buck I described at the beginning of this article? Well, I chose to try the straight-down shot on him, too. That buck was really wired. He was so alert that he caught me as soon as I started to draw the bow—and he was gone so fast that he left me with a half-drawn bow and a shocked look on my face.

As I said: I'm still learning. 



Bowhunter Chance Pesttrue rattled two bucks in at the same time during the November rut. This trophy whitetail was the larger of the two.

review



> Visit Cabelas.com

True Style and Fit

Cabela's Open Range Somervell Boot

WHERE I LIVE IN THE SOUTHWEST, ranching and riding horses are long-lived legacies. This is why nearly everyone you see wears a set of "cow-kickers"—whether or not they are real cowboys.

As a serious outdoorsman and hunter and not a bona fide wrangler, I tend to fall into the group that chooses Western boots for adding style for a night out on the town or for a formal dress-up event.

For this reason, I'm certainly no expert on Western boots, but I know a lot about quality leather hunting footwear and proper comfort and fit. I've also owned four sets of Western boots over the years, so I have some sense of what works and what doesn't—again, for casual, regular wear.

With that said, I'd like to tell you about a new set of boots I've been trying out: Cabela's Open Range Somervell.

To begin with, these boots fit my feet very well. I'm a stickler for comfort, and the Somervell delivers in this area, in part because of its wide, generous toe box. The boot's square toe seems to offer more room, compared to standard, pointed-style versions. This is a huge plus for most users.

Next, the boot's outer and inner construction is crafted from genuine leather and not a cheap imitation. With regular wear, leather improves comfort and flex, especially on those hot, sweaty days. Cabela's boot designers did use synthetic lining in the foot region, however, to do a better job of absorbing moisture.

On the outside, this 12-inch-tall boot provides true cowboy style, but in a modest, classy way. There's no shiny look here, only a non-glare, bold appearance—just what a Western boot should look like.

The lower foot region is constructed of a mahogany-colored suede that wears without scratching and looks great with virtually any type of pants. The soft, sand-colored leather upper has classic Western-design stitching for added style and contrast.

My favorite feature of all is the boot's outsole. This is not one of those flimsy, slick-bottomed platforms. Instead, the boot has a wide, sure-grip rubber outsole more common to a workman-style boot. I prefer this feature, because I'm not typically two-stepping around a dance floor. And, in snow or ice, this sole will save the day, compared to one that is smooth, sled-like and dangerous.

All in all, after wearing the boots on and off for the last couple of months, I must say that I'm impressed. They fit just as well as any high-priced Western boot I've used or tried on before at a store. And, they are surprisingly lightweight—about 3½ pounds per pair.

Really, for only \$159, you'd be hard pressed to find something better. Be sure to give them a try and see for yourself. They're available in men's sizes 8 to 13D, with half sizes up to 12. —Joe Bell

[illegible]

Unique, Diverse and Complete

While there is no shortage of other survival kits on the market today, the Henry version is certainly unique and worthwhile in many different ways, beginning with its lightweight and small size. The factory brochure indicates that this kit weighs in at about 6.2 ounces, but when I weighed my own kit—fully packed from the factory—my scale indicated a weight of a little over 1 pound. Nevertheless, that is pretty darned light, when you consider the contents inside. I'm quite confident, even at this slightly heavier weight, that it won't pose a problem for anyone wishing to pack it around.

Now, couple that light weight with an overall measurement of only 7.3x4.6x2.3 inches, and you have a survival kit that will easily and comfortably fit inside your pack, the pocket of your cargo-style pants or, in some cases, even in your jacket pocket.

Possibly the most unique features of the U.S. Survival Kit can be found in its diversity and completeness. Each kit includes items specifically intended to keep you warm and comfortable in the event you have to spend an excessive amount of time exposed to the elements. The kit also lets you signal and locate assistance, treat wounds and injuries, locate food sources, build a fire, treat a water supply, build a temporary shelter, provide light—and much more. All included supplies and tools seem to be of very good quality; in fact, some are U.S. military- and/or NATO-issue products.

Obviously, a great deal of consideration must have been given to the items selected for the Henry kit in an effort to cover a broad array of potential conditions, events and dangers and still keep the entire package as small and lightweight as possible. The end result is a very inclusive unit that, in some instances, could be crucial to ensure your or someone else's survival.

Key Tools

One of the many key products that caught my attention was the small Utica Kutmaster Mini Multi Tool, which is of superb quality and



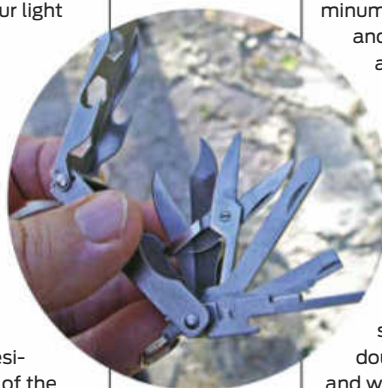
would run about a third of the entire survival kit cost if this tool were purchased separately. The Utica Kutmaster MiniMaster Multi Tool is a great tool that provides many and varied functions—from cutting applications to removing or tightening screws and nuts.

In addition, the kit contains water purification tablets, a 12-hour light stick, snare wire, spiral wire saw, Photon Micro light, compass, fishing gear, beeswax candles, bandages and gauze, a means of carrying water, a space blanket and many other desirable items. It is hard to believe that so many useful items can be squeezed into such a small package!

At first, I was just a bit hesitant to take all of them out of the kit—fearing they would never fit back inside. Nevertheless, I forged ahead so I could inspect each item while thinking about how I would use it in an actual emergency situation.

Once I completed my evaluation, I was pleasantly surprised by how easy it was to place everything back in the kit—and still get the lid closed

I was miraculously able to get everything back inside the Henry U.S. Survival Kit without a great deal of effort—due largely to the great latch system.



(above) One of neat items included in the survival kit is the KutMaster Mini multiple-purpose tool. This item, alone, would retail for about a third of the cost of the entire kit and helps to show the value of the kit as a whole. (left) Small enough to even fit inside the cargo pocket of most pants, the Henry U.S. Survival Kit makes the perfect survival package for virtually any outdoor adventure.



“It is hard to believe that so many useful items can be squeezed into such a small package!”

securely. Largely, the ease of replacing everything can be credited to the design of the rubber roller lid-locking system: Once I had packed the items inside, the roller latch system further compressed the items inside, forcing the lid closed.

What Else Is Inside

The kit's box is impressive in its own right. Made of hard-anodized aluminum, it is durable and lightweight and contains a rubber seal

around the lid to help ensure the contents stay dry and well protected from the elements. For further protection against problems associated with moisture contamination, the items inside were sealed inside a ziptop storage bag, which, if needed in an emergency situation, could serve the double purpose as a catch basin and water transporter. While Henry Repeating Arms Company doesn't warrantee that the kit is fully water- and fireproof, it certainly has the ability to resist those elements considerably.

Some people might be tempted to use the survival box, itself, as a cooking utensil, but the company advises against that. Nevertheless, I think it could work as a pot to hold and transport water, if necessary.

It is virtually impossible to provide a thorough description of the many items contained in the Henry U.S. Survival Kit in such limited space, but here is a list of its general contents:

- basic survival instruction sheet
- watertight bag
- personal-use fishing kit
- mini map compass
- mini rescue flash signal mirror

- beeswax tea light survival candle
- tinder quick (10)
- type 1a utility cord (20 feet)
- photon micro light
- sewing kit
- spiral wire survival saw
- 1-foot flexible latex tubing
- trauma bandage and gauze roll
- Adventurer compact repair tape
- Adventurer compact fire starter
- Rapid Rescue survival whistle
- snare wire (20 feet)
- Adventurer all-weather matches (10)
- Utica Kutmaster Mini Multi Tool
- flat coffee filter
- water bag
- MicroPur water tablets (5)
- 12-hour light stick
- space survival blanket
- compact signal panel
- silica gel
- Fresnel lens firestarter
- Derma safe razor knife

Carrying an MSRP of only \$99.99, the Henry U.S. Survival Kit is a great bargain. However, as complete as it is, in order to be fully protected, I like to also have along a small companion first aid kit. The Henry survival kit does contain some first aid items, but as a result of the need to keep the kit as small and compact as possible, I would characterize those items as being the bare essentials for the most part. By including a small supplemental first aid kit to complement the Henry kit, you will be even better prepared in the event of an emergency or to patch up a scrape or provide a little relief from bug bites.

Build Your Own Survival Kit

While there are many complete first aid kits on the market today, for me, it makes better sense to build my own. This offers the advantage of being able to select the specific items most appropriate to one's own personal needs. A few I typically include in my own first aid kit are listed here.

Obviously, some items are most commonly available and sold in larger-volume packaging than would be appropriate for a small, lightweight package for the field; but certainly, you can transfer some of



(above) Building your own first aid kit makes good sense and allows you to include only those items you feel are appropriate and necessary.



Although the factory brochure indicates the weight of the Henry Survival Kit as 6.2 ounces, the author found his own scale showed a weight of a little over a pound. Nevertheless, even at this slightly heavier weight, the kit is very convenient to pack around.

those contents to smaller containers for this particular application.

Small, empty bottles are available for sale in the travel section of stores such as Wal-Mart, as well as in pharmacies and outdoor stores such as REI. Most often, travelers use these containers for their shaving kits or toiletries bags.

You might also be able to scavenge bottles used for other types of products—as long as no cross-contamination results and there is no problem with the new contents chemically “attacking” the bottle material. Just stick a label on them, and you will be ready to include them in your own first aid kit.

Recommended items to include in your personal first aid kit:

- adhesive bandages and gauze in various sizes
- medical adhesive tape and/or duct tape
- cotton balls
- hydrogen peroxide
- rubbing alcohol
- Neosporin or another antibiotic; disinfectants
- iodine
- liquid bandage (such as New-Skin®)
- aspirin
- bug repellent
- superglue
- sunscreen
- pain medications
- small knife, razor blade, scissors or other form of cutting tool
- any personal medications you or your companion(s) might need


Note: Some of these same items are included in the Henry U.S. Survival Kit, but many are in such small quantities that it might be advisable to supplement those supplies in your personal first aid kit.

The intended use and purpose of many of these items are understandable: Hydrogen peroxide and rubbing alcohol can be effective for disinfecting wounds, but rubbing alcohol also has the potential of providing a great deal of relief from itching bug bites and skin irritations. I frequently use it both in the field and at home for that purpose and find that it works great. A swipe of rubbing alcohol over bitten areas provides even more relief from itching than many of the products sold specifically for that purpose.

Iodine is a medication that often falls under the radar, but it does an excellent job of killing fungus, bacteria and other microorganisms. It also seems to work great as a disinfectant. Because many people see iodine as an old-fashioned remedy, it is relatively cheap to purchase.

New-Skin® can be a good product to include, because it can seal a cut or injury—in some cases, even better than an adhesive bandage. In fact, sometimes, a bottle of superglue can be used for the same purpose. And, of course, aside from aspirin being a remedy for a headache, it is frequently used as a temporary, stopgap treatment for a heart attack.

Obviously, don't forget to include your personal prescription medications; they might be needed in case of an unexpected overnight stay away from your home medicine cabinet.

The Henry U.S. Survival Kit, accompanied by a small, lightweight first aid kit containing items of your own personal choosing, will fit the bill for a lot of outdoor activities. In this case, a little preparedness goes a long way. 

Six DIY Barnboard Projects

TRANSFORM UNSIGHTLY, TIMEWORN FARM LUMBER INTO STUNNING RUSTIC DÉCOR

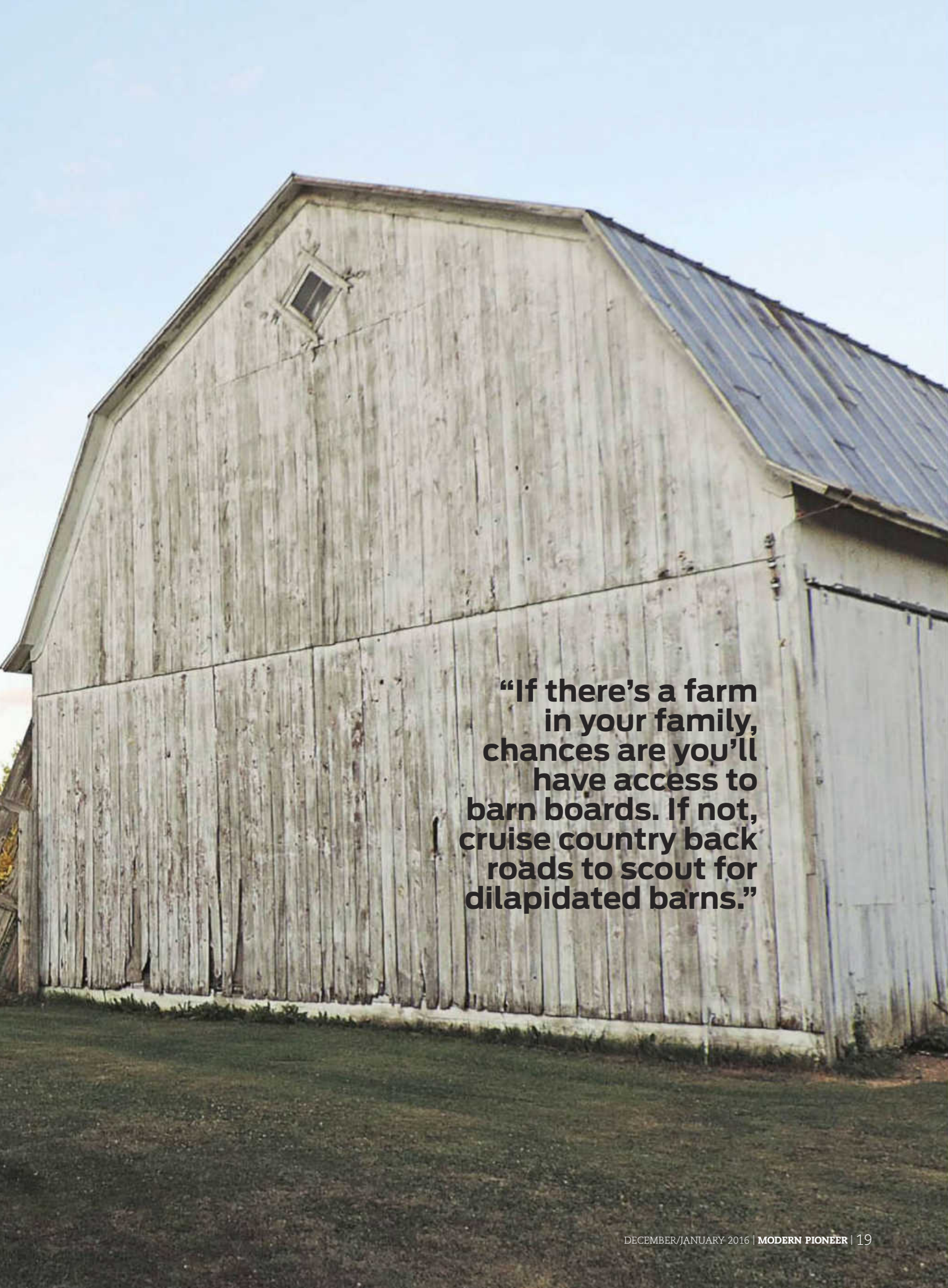
By *Darron McDougal*

DURING A RECENT VISIT TO MY GRANDMOTHER'S WISCONSIN FARM, MY WIFE, REBECCA, AND I NOTICED ONE OF HER BARN'S SLIDING DOORS WAS HANGING BY ONLY ONE HINGE. The bottom of the door was quite deteriorated. Most would see it as an eyesore. We saw it as an opportunity to craft rustic home décor on the cheap.

After chatting with Grandma about using the weathered door, she gave us the green light. A few weeks later, I lifted the huge door to get the hinge off its track and it fell into the tall field grass bordering the barn. I immediately began imagining projects my wife and I could take on. Ideas flooded through my mind.

Designing home décor can be difficult if creativity isn't in your skillset. However, the possibilities are endless when working with barn boards. You might find Google and Pinterest valuable resources for creative ideas.

For this article, though, we took an original approach rather than copying what we found online. I'll share six barnboard creations you can easily make with simple tools and a little elbow grease. You'll find crafting them both rewarding and purposeful.

A large, weathered wooden barn with a gambrel roof. The barn is constructed of vertical wooden planks that show significant signs of age and wear, including discoloration and some missing or damaged boards. A small, square window is set into the upper gable of the barn. The roof is covered in dark, corrugated metal. The barn is situated on a grassy field under a clear sky.

**“If there’s a farm
in your family,
chances are you’ll
have access to
barn boards. If not,
cruise country back
roads to scout for
dilapidated barns.”**

Crate

A crate makes a fabulous way to store everything from decorative pillows to your backyard barbecue utensils, and it's fairly simple to make. Use a tape measure, straightedge and pen to mark two 12-inch boards and four 18-inch boards. Make your cuts using a circular saw. Once the boards are cut, use a hammer and finish nails (if you have one, a nail gun saves time) to connect the 12-inch boards and two of the 18-inch boards into a rectangular frame.

Next, nail the remaining two 18-inchers to the bottom of the frame. These make the frame into a crate. Believe it or not, you're done. If you wish, add some dimension by cutting out carrying handles on the 12-inch sections. Start a pilot hole with a large drill bit and then use a jigsaw to cut out ovals large enough for hands.

A crate's uses are limitless: Use it to serve drinks to guests; as a base for displaying gourds and pumpkins on your front doorstep; or place a flower arrangement centerpiece in it for wedding décor. Hopefully, these few ideas will get your wheels turning. Think "outside the crate," and you'll find many uses for this wonderful creation.

Lantern Frame

The lantern frame makes an excellent coffee table piece, and it's incredibly easy to make. If you don't own a rustic or decorative lantern, visit your local resale shop or hunt one down at a garage sale. Once you've found one, measure it so you can build a barnboard frame to fit. Lanterns are typically taller than they are

PROJECT TOOLS

Most barnboard projects can be constructed with inexpensive tools. Perhaps you already own some of them. However, for efficiency's sake, make sure you have everything you need before you begin to eliminate repetitious store runs.

Here's a list of tools we used to create our barnboard projects:

- ✓ circular saw
- ✓ saw horses
- ✓ tape measure
- ✓ straightedge
- ✓ pen or pencil
- ✓ drill
- ✓ drill screw bit set
- ✓ hammer or air nailer
- ✓ finish nails
- ✓ paintbrush
- ✓ white paint
- ✓ black ink or paint
- ✓ ¾-x2½-inch hex bolts
- ✓ metal picture hangers



(from top) Remove nails from your barn boards before sawing. This avoids broken saw blades and other accidents. • Use a tape measure to mark pieces of wood for consistent dimensions. • A straightedge helps you mark boards for straight cuts.

The author uses saw horses and a circular saw to cut boards to length for different projects.



wide, so a rectangular frame often works best. We used 12- by 18-inch boards for our lantern.

Use a circular saw to cut four barn boards for the frame and tack them together with a hammer and finish nails. The neat thing about this piece is that you can add a candle to the lantern.

The lantern frame can also be used to display mason jars, wine bottles or jar candles. Like the crate, it's quite versatile, and you can alter its uses through the changing seasons.

Coffee Bar Sign

Coffee bars are increasingly common, and they're a great way to entertain guests. These setups are often placed on stand-alone bars or

FINDING BARN BOARDS

➤ Barn boards are in high demand across certain regions, and some people are charging a pretty penny for them. If there's a farm in your family, chances are you'll have access to barn boards; if not, cruise country backroads to scout for dilapidated barns.

Once you've located one, pay the landowner a visit. Dress cleanly and use good manners. Politely ask if you can remove some boards from their rundown barn. If they ask what you're using them for, explain that you're creating rustic home décor. Most are happy to give away enough boards to keep you busy for some time. If you want more than what they're willing to give you, offer to pay them. This would be the proper approach if you were planning to sell your projects. Be courteous, and don't take advantage of people.

In addition to cruising the countryside, hunt down barn boards via Facebook. Many cities and counties have garage sale pages on which users can list items for sale. I've run across a listing or two for barn boards people were giving away in order to clean up their farmyards. Alternatively, create a post stating that you're looking for barn boards.



The author staggers three barn boards for a sign, adjoining them with small wood strips.



He then inspects his three-tiered sign during the beginning stages.



Darron and Rebecca McDougal collaborated to create this attractive, three-tiered sign with a meaningful Bible verse.

“Crafting home décor isn’t for everyone—but, with a little ambition and determination, you can create your own decorative items.”

antique dressers. A great way to style up your coffee bar is a hand-painted barnboard sign.

The beauty of signs is that you can make them any size or shape. I sawed a 24-inch board and then passed the project over to my wife. She freehanded some text onto the board with black ink and a small paintbrush. Freehand inking personalizes a piece. If you’re not gifted with a steady hand or artsy talent, you can purchase stencils at your local craft store to make this task cleaner and easier.

Once finished, the sign makes an excellent addition to your kitchen, coffee bar or breakfast nook. You can rest it against a wall or hang it by attaching a metal picture hanger on the back of the sign. Feel free to personalize your wording.

Box Shelf

What better way to display books or a dried wedding bouquet than a barnboard box shelf? This project can be built square or rectangular to any dimensions. As with our crate’s main-frame, we made our box shelf 12 by 18 inches. We added backing boards to our shelf, but you don’t have to if you prefer a basic box. You can tack it together with finish nails, but I recommend using drywall screws if you’re putting books or other heavy items on it. Add two metal picture hangers, and use 90-degree metal brackets to support heavier items.

You might consider making a straight, one-piece shelf using decorative metal brackets for support, but we feel the box shelf adds dimension and an impressive touch to a room.

Coat Rack

Every home entrance should be outfitted with a coat rack so guests can shed their coats as they enter. A barnboard coat rack is one of the simplest creations to construct. Purchase four or more $\frac{3}{4}$ - by 2 $\frac{1}{2}$ -inch hex bolts for hooks from a construction supply store. Saw a 36-inch barn board, and drill $\frac{1}{4}$ -inch holes

FOR FUN OR PROFIT

➤ Most people who design barnboard projects are hobbyists, but these objects can also be built for profit. We sell some of the items we make, and we’ve found the key to selling them is marketing them to the right audience. For instance, our town has a consignment store that specializes in rustic and antique décor, so we display some of our creations there. We also sell items through regional garage sale pages on Facebook.

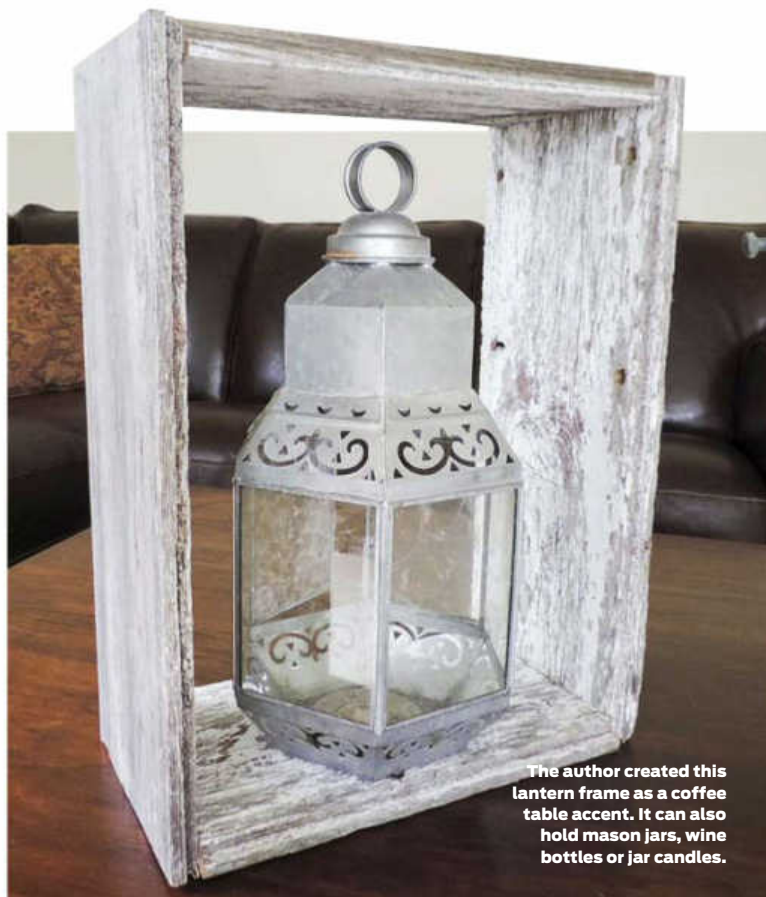
Determining prices can be challenging. We consider our time, material costs and the “brilliance” of the finished piece. Then, we ask ourselves what someone would pay for it. We mark our items accordingly. If they don’t sell within a reasonable timeframe, we reduce our prices to move the products.



The author's wife, Rebecca, paints text onto a coffee bar sign.



The finished coffee bar sign makes an excellent accent piece for kitchens, coffee bars or breakfast nooks.



The author created this lantern frame as a coffee table accent. It can also hold mason jars, wine bottles or jar candles.



A box shelf made from barn boards can hold anything from books to pictures to dried wedding bouquets.



The McDougals made this coat rack using hex bolts as hooks. It can also double as a towel hanger.

evenly across the board. Simply turn the bolts into the holes until they're flush with the back of the board.

Because coats can be heavy, attach the rack to the wall with screws rather than with a picture hanger. This will prevent it from falling as coats are removed from the rack. The coat rack can also double as a towel hanger for rustic bathroom settings.

Staggered Three-Tier Sign

This one's a bit more complex than the coffee bar sign. Begin by sawing three 18-inch boards. Tack them together in a staggered fashion using small wood strips across the back side as adjoining supports. Now, you're set to inscribe your message onto the boards.

We chose a meaningful Bible verse (Mark 9:23) that reads, "All things are possible if you believe." As with the coffee sign, I passed the artistic part of this project to Rebecca. She used a small paintbrush and standard white wall paint. Once the paint dried, she outlined the word "believe" with black ink to add to the effect. The end result is a beautiful, rustic sign with a positive message. Be creative with your wording and make it meaningful.

Creating rustic barnboard décor requires little skill. In fact, practically anyone can do it. My favorite part of the process is that you don't have to be perfect. Each creation should be individual and personalized. We believe imperfections actually add character to the finished product.

Our barnboard projects have meaning beyond the decorations. For example, we recycled an otherwise useless barn door. Plus, each of our projects contains a splash of history because the boards came from a family farm. If you're able to reap barn lumber from a family member, you'll understand the sentimental value I'm talking about.

Crafting home décor isn't for everyone; but, with a little ambition and determination, you can create your own decorative items. Whether you're looking for a weekend hobby or another income source, barnboard projects are rewarding ways to transform unsightly farm lumber into stunning home décor. ■



· BUSHCRAFT ·

THE TOMAHAWK:

The American Frontiersman's First Multi-tool

TODAY'S 'HAWKS' MAINTAIN THE FEATURES THAT MADE THEM SO POPULAR AND USEFUL TO THE EARLY PIONEERS
By Larry Schwartz



“Because of a design that has evolved over the centuries, the tomahawk is a very useful and versatile tool.”

THE TOMAHAWK HAS BEEN AN INTEGRAL PART OF THE PIONEER'S KIT FOR CENTURIES. It is lightweight and has a handle long enough to propel the relatively light metal head with the right amount of speed to do the chopping and fighting chores it has become famous for in North American folklore, as well as in actual practice. The combination of a cutting edge on one side with a hammer poll on the other makes it a versatile tool that easily handles chores from chopping to fighting to hunting to fine shaving work on wooden objects.

With a sharp tomahawk on his belt, the pioneer of the 18th and 19th centuries could do pretty much any essential chore that required pounding or cutting. Preceding the innovations from Leatherman by a couple of centuries, the tomahawk was really the first multi-tool.

Some History

The history of the tomahawk goes back centuries to the Native Americans of the Eastern woodlands, mainly the Iroquois nation. Initially, tomahawks were made from an oval- or triangle-shaped rock that had an edge on it. This edge might have been made by natural erosion or by knapping an edge on it. The head was then attached to a wooden handle using sinew, rawhide strips or other cordage.

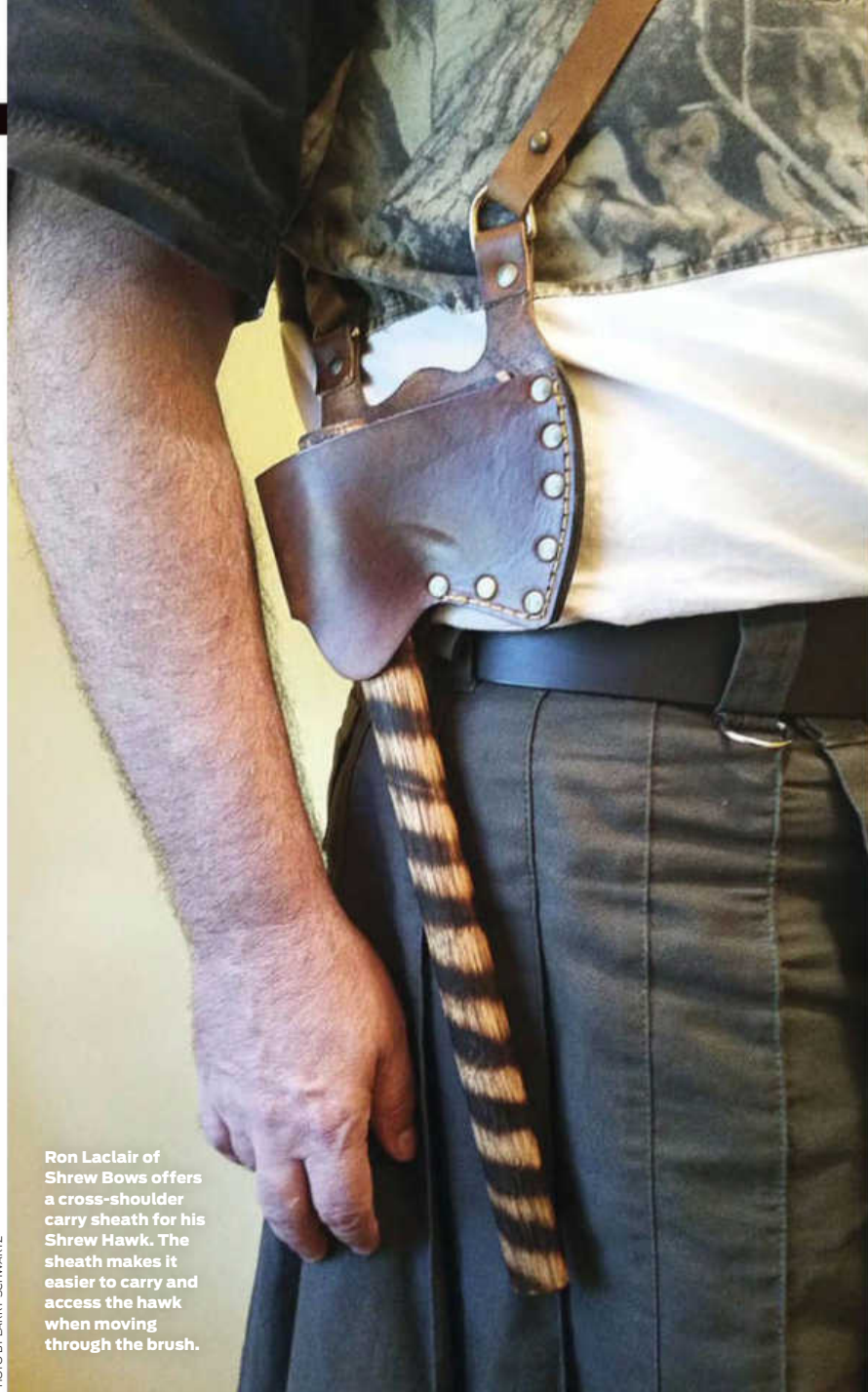
Native Americans used them as a daily-use tool for cutting, chopping, hunting and, when necessary, fighting. In the 1700s, European trappers and traders brought metal axe heads with them as trade goods. These were very popular with the native peoples, as well as the early colonists and settlers, because they were sharper, much more durable and easier to maintain than the stone heads they had been using. (By the way, the word, *tomahawk*, came from the Algonquin compound word, *tamahaac*, which signified a tool for cutting.) As Europeans and the new Americans moved westward across the continent, the tomahawk went with them, finding a place in the kits of pioneers, mountain men and, of course, the Native Americans of the plains.

The Modern Tomahawk

Today's tomahawks—or “hawks,” as they are often called—maintain the features that made them so popular and useful to the early pioneers: They can be used with one hand and feature a tapered wooden handle passed through a metal axe head. The latter is heavy enough to cut and chop while being light enough to maneuver easily in a fight. Hawks are normally lighter in weight than small axes or hatchets; the handle can be easily replaced in the field if it gets damaged; and the head can be removed from the handle for use as a handheld cutting or scraping blade—similar to the Eskimo *ulu*. This capability is not available with the more-contemporary tomahawk designs.

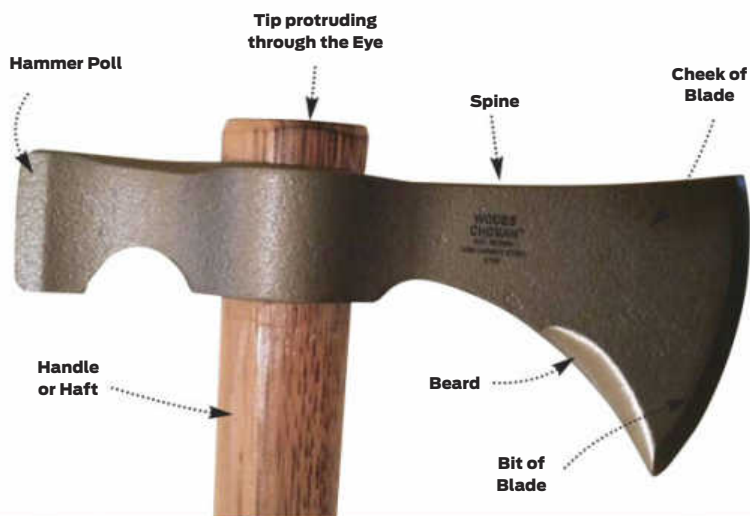
The modern metal head has a blade on one end and a flat hammer poll and a spike or pipe bowl on the other. It has an oval-shaped hole in its center through which the handle is passed. An important design feature is that the hole in the head is wider at the top than it is at the bottom. The oval shape keeps the head from rotating on the handle from the impact of hitting or cutting something. The tapered shape of the opening allows the head to slide along the handle, where it wedges in place as a result of the wider diameter of the handle at the far end.

This design also means that all you have to do to keep the head tight on the handle is to



Ron Laclair of Shrew Bows offers a cross-shoulder carry sheath for his Shrew Hawk. The sheath makes it easier to carry and access the hawk when moving through the brush.

PHOTO BY LARRY SCHWARTZ



PHOTOS BY LARRY SCHWARTZ



The Shrew Hawk is the lightest and smallest of the four discussed in this article. Its head is light enough for ease of carry all day, but it is still heavy enough to provide a clean and deep cut.



H&B Foundry's Medium Camp Axe is just one of the many styles and sizes of axes and tomahawks this company offers. It is a good choice for general-purpose cutting while in camp or at home.



The CRKT Woods Chogan is a drop-forged tomahawk shaped with a blunt hammer, which makes the steel very dense and strong. It is the heaviest of the hawks discussed in this article and has the longest cutting edge—resulting in a very effective tool for use in camp, at home or on the hunt.



The Cold Steel Trail Hawk is the least expensive of the four covered here and makes a great starter hawk; it is easy to sharpen, easy to customize, and easy to throw and chop with.

“The word, *tomahawk*, came from the Algonquin compound word, *tamahaac*, that signified a tool for cutting.”

tap the top on something hard to wedge it back into place. There isn't any need to place wedges into the top of the handle to tighten the head on the handle as you need to do with an axe or hatchet.

The tomahawk head is typically 5 to 8 inches long, with a cutting edge of 2 to 5 inches. The handle can range anywhere from 10 to 25 inches long—the longer the handle, the more force being applied. Tomahawks range between 1 and 7 pounds, depending on the weight of the head and the length and composition of the handle.

Tomahawks vs. Hatchets and Axes

Tomahawks differ from axes in three major ways: First, the metal head is normally lighter on the tomahawk, which makes them easier to carry while still having enough mass to do the intended work. Second, the tomahawk head is held in place by friction on the handle, rather than by a wedge driven into the top of the handle, to force it outward and press

against the axe head. Third, the tomahawk handle is generally not as long as a full-sized axe but is longer than the handle of its closest cousin, the hatchet.

A Plethora of Uses

Because of a design that has evolved over the centuries, the tomahawk is a very useful and versatile tool. As a lightweight axe, it can do everything you need to build a shelter: cut saplings for poles, trim tree branches for roofing, make pegs or drive poles into the ground.

Its sharp edge can be used to cut up wood for tinder and kindling to start a fire and then process larger branches to keep it going. It can make fuzz sticks to help start the fire; alternatively, it can be used as a striker with flint or a ferrocerium stick to provide sparks to start a flame.

As hunting or trapping tools, tomahawks are used to split pelvises and separate joints when field-dressing and processing game animals.

They make quick work of removing the extremities on small game such as squirrels and rabbits. The metal head, which can be used either on the handle or removed and used directly in the hand, can be used to skin an animal, butcher the meat and process the skin.

In a less-peaceful scenario, the tomahawk was also used as a tool of warfare and self-defense. The usefulness of the cutting edge is obvious in this regard, and the opposite end of the head has either a hammer poll or a spike, which could be used to cave in a skull or punch a deep hole into the brain. They could also be thrown at an enemy—a technique that is seen more in movies than in life. In reality, the experienced fighter would avoid losing physical control of his weapon at all costs.

Buyer's Guide

The tomahawk models discussed here are all priced under \$100, so you don't have to spend a lot to get a good-quality backwoods tool. These hawks also feature the traditional design of a metal axe head with a cutting edge



With the advent of knapping techniques, the tomahawk's predecessor took its first major technological leap, as shown in this knapped axe head with a groove where it attaches to the handle.

and hammer poll that fits snugly onto a tapered wooden handle.

• CRKT Woods Chogan T-Hawk:

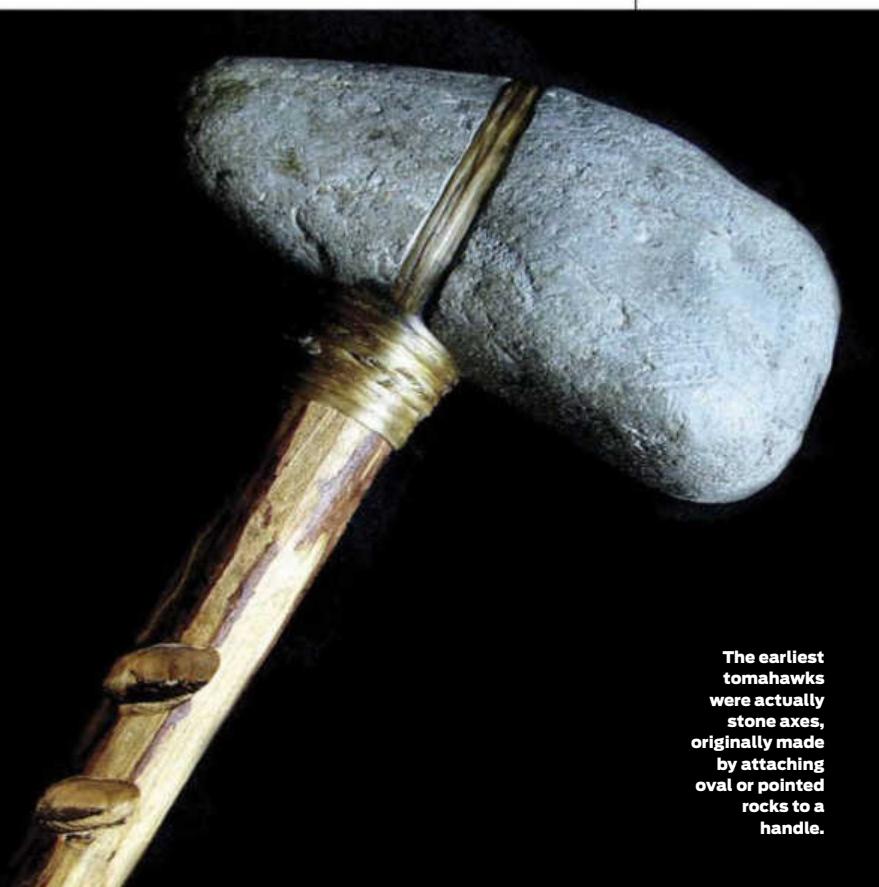
One of four tomahawks in the CRKT product line, the Woods Chogan is my favorite all-purpose hawk of the four covered in this article. It has the heaviest head and the longest cutting edge of the group while still maintaining the traditional tomahawk design, with its replaceable hickory handle, cutting edge and hammer poll.

Formed using the drop-forge technique to shape a metal ingot into the desired shape, the Woods Chogan's metal is very strong and holds an edge well. The medium thickness of the cutting edge and the edge angle mean that it will not get stuck when it cuts deeply into wood. This hawk is made for CRKT by Ryan Johnson, owner of RMJ Tactical (the maker of several models of tactical and fighting tomahawks). This hawk comes sharp and with a polished edge that is differentially heat-treated to make the forward edge stronger.

• **Cold Steel Trail Hawk:** When it comes to your first tomahawk, especially one that does not cost an arm and a leg, Cold Steel is probably the name that most often comes to mind. The Trail Hawk is just one of a dozen axes and tomahawks in its catalog. The Trail Hawk is an excellent basic hawk, with a 6½-inch head, 2¼-inch cutting edge and a hammer poll on its 22-inch-long hickory handle. Its cutting edge is the narrowest of the four hawks reviewed here. It cuts deeper than the wider blades of similar weight.

Also, due to Cold Steel's simple, but effective, designs, its hawks are frequently the choice when someone wants one they can customize to fit their individual needs or artistic flair. (You can do a quick search on YouTube, which has several videos showing how CS hawks have been customized.)

Each CS hawk comes with black paint over the head. This paint can easily be removed if you prefer to polish it to a bright finish or give it an acid wash patina with vinegar or other mild acid. The handle is covered with a lacquer finish that can also be removed via sanding and then stained the color you want and cut to the length you prefer. Those who customize their CS hawks often wrap the handles with leather or paracord/550 cord to provide a better grip. This can be done on the lower part of the handle where it is normally gripped or is applied below the head to cushion the handle in the event you miss what you are cutting and hit the handle instead.



The earliest tomahawks were actually stone axes, originally made by attaching oval or pointed rocks to a handle.

PHOTO BY THINKSTOCK

PHOTO BY THINKSTOCK

SUMMARY TABLE

Manufacturer	Model	Retail price	Weight overall (pounds)	Length overall (inches)	Length of head (inches)	Cutting edge (inches)	Construction method
CRKT	Woods Chogan T-Hawk	\$70	1.63	19.0	7.50	3.50	Drop-forged
Cold Steel	Trail Hawk	\$40	1.46	22.0	6.50	2.25	Drop-forged
H&B Foundry	Medium Camp Axe	\$70	1.31	17.5	5.50	3.50	Hand-forged
Ron Laclair /Shrew Bows	Shrew Hawk	\$80	1.19	15.0	5.00	2.50	Hand-forged

• **H&B Foundry Medium Camp Axe:** H&B Foundry's master blacksmith Jarrod Barber has been making edged tools for over a decade in the company's Ohio workshop. His creations range from tomahawks and hatchets to full-sized axes of all kinds to throwing tomahawks.

H&B Foundry also offers several products for the black powder and mountain man markets. Barber's medium camp hawk is hand forged, unlike the Woods Chogan and Trail Hawk, which are forged with machinery for the most part. Its curved blade, combined with a 1-pound head on a 17-inch handle, makes it an excellent chopper, cutting deep into branches and small logs.

This hawk came without any delay from the foundry and, unlike some other hawks, has a hand-sharpened edge that is cutting-sharp on arrival. The cutting edge is polished and is the deepest of those reviewed.


• **Shrew Hawk:** One look at Ron Laclair, and you know he is in tune with mountain man lore and life. The Shrew Hawk tomahawk, which he designed and sells on his shrewbows.com website, reflects his love of edged tools and other items that do what they were designed for well.

The Shrew Hawk is the smallest and lightest tomahawk I know that can still do what is needed in the field and on the hunt. Crafted by blacksmith Carlton Matteo, it features a hammer poll on the rear of the head and a 3-inch-long blade on the front end. A flattened piece of car leaf spring or drill rod is forge-welded into the head to form the cutting edge. This gives it a much stronger cutting edge—which also keeps its sharpness better than most other tomahawks that are available for under \$100.

While I prefer a hawk with some more weight in its head for use around camp, such as the Woods Chogan, the Shrew Hawk is the one that gets attached to my daypack for everyday carry in the field as a result of its ability to balance weight, utility and ease of handling in a compact package.

A Multi-tool, Indeed

I carried a hawk instead of a hatchet when I was a young Boy Scout in the 1960s. As a result of the excellent quality of today's traditional, hand-forged designs, it found its way back onto my packing list a number of years ago.

The hawk was the pioneers' first real multi-tool. Consider adding one to your kit. With a tomahawk in hand or on your belt or pack, you, too, can cut, chop, pry, shave, slice, pound, dig, puncture, skin, quarter, hammer, split any piece of wood or process a game animal. You won't be disappointed. 

Because the tomahawk's head can be removed by banging the bottom of the handle on something hard to dislodge the head, you have the flexibility of using the head by itself as a scraping or skinning blade—much like the Eskimo *ulu*.



PHOTO BY LARRY SCHWARTZ

The head of the tomahawk has a tapered eye—wider at the top and narrower at the bottom—which makes the head lodge firmly on the end of the tapered haft.

VENDORS

Cold Steel
coldsteel.com

CRKT
crkt.com

H&B Foundry
hbforge.com

Ron Laclair (Shrew Bows)
shrewbows.com



PHOTO BY LARRY SCHWARTZ

Foraging for Wild Food Throughout the Year

KNOW WHAT TASTY PLANTS ARE IN SEASON
By Michael Pendley

As the first long hunters and early settlers explored and tamed this country, they fit the very definition of the term, “hunter-gatherer.” Absent were cultivated crops or convenient trading posts at which a person could obtain needed supplies. These early settlers killed and foraged for just about all the food they consumed.

Although we no longer have to forage for our meals, the same wild foods our ancestors loved are still out there for the taking. There is no more natural meal than one you gathered yourself while walking in our natural wild areas.

Of course, there are some safety concerns when gathering wild food. Everyone has heard tales of poisonous mushrooms, but there are a few other plants out there that can put you in the hospital—or worse. So, how do you learn what is safe and what isn't?

PHOTO BY THINKSTOCK

“There is no more natural meal than one you gathered yourself while walking in our natural wild areas.”





“Try a small amount of a new wild edible and give it some time—up to a day or two—to work through your entire digestive system.”

Find a Guide

One of the best ways is to find an experienced forager to guide you on your search. Foragers can be local folks who have been searching for edible plants for years.

Alternatively, you can attend schools designed to teach people how to live off the land. One such program is the Nature Reliance School in Winchester, Kentucky. Owners Craig and Jennifer Caudill are experts in wild food and survival situations and, along with their team of instructors, teach survival classes nationwide.

For anyone interested in gathering wild food, Craig suggests a smart approach: “Start with at least three written resources on wild food. Over the years, there have been many books written on the subject, and several of them don’t agree with one another on any given plant. By cross-referencing at least three sources, you can be sure that the plant you are looking at is safe.”

Ask a Local

Next, find someone local to guide you on your quest for wild food. Ask them what plants are common in your area and when they are at their prime. I have eaten wild foods in southwestern Tennessee weeks before those same plants were ready in my home area of north-central Kentucky. By having a local guide, you know what to look for and when.

Start Slow

Finally, avoid trying to identify every plant you see. Pick one edible plant and go find it. Search all day or even for several days until you can recognize that plant right away. Once you know what the plant looks like and where it is likely to be found, you can move on to the next plant.


“By searching for, and trying to identify, several plants simultaneously, most people get frustrated and don’t commit individual plants to memory,” Caudill points out.

Where will most edible plants be found? Often, people think of foraging as a deep-woods activity. And, with the case of nut mast and certain mushrooms, that is correct.


However, according to Caudill, the vast majority of edibles will be found along edge habitat. There is a reason wildlife tends to congregate in edge-style habitat: The combination of sunlight and less competition from large tree root masses for water and nutrients means smaller, edible plants grow well along such areas.

The Seasons—A Foraging Overview

Each season of the year offers a different bounty of edible plants. Weather, temperature and rainfall amounts dictate the exact time each plant is ready to eat, but the general seasons are a good guide to what is available and when (for the purposes of this article) across the Midwest.



A common lawn weed that is actually a wild edible, chickweed is an extremely mild wild green that lacks the bitterness often associated with wild salads.



Recognized by its heart-shaped leaves and tiny, yellow flowers, wood sorrel can be eaten raw in salad or wilted in a hot pan. Wood sorrel has slight hints of lemon and pepper flavor.

Spring

Spring is the season for green and soft plants. A few of Caudill's favorites for salads and greens are available this time of year. In the spring, think salad.

•**Chickweed:** A common weed in many a subdivision landscape, wild chickweed is a tasty green in its own right.

Chickweed is a small plant of intertwined stems lined with small, green, oval leaves. Its white flowers are made up of five double-lobed petals. Add chickweed leaves directly to salads or sandwiches or boil the leaves, stems and flowers in a soup or stew. Chickweed tastes mild and fresh, lacking much of the bitterness of some wild plants.

•**Wood sorrel:** Yellow wood sorrel is another common weed that is actually a great edible green. With a sharp and lemony flavor, wood sorrel can be wilted in hot oil or butter or served fresh with a salad. Wood sorrel has small, heart-shaped leaves and tiny, yellow flowers on thin stems. The plants also exhibit small seeds that look like tiny okra.

•**Purple violets:** Not to be confused with white violets—which are inedible and can cause serious medical issues—purple violets are not only edible, they are also a great addition to wild salads. Its leaves are edible, and its flowers are a tasty, almost sweet, treat. The blooms can be coated in a light egg wash and dipped in sugar for a beautiful garnish. Purple violets have soft, heart-shaped leaves. Look for a purple tint to the leaves to ensure you have the correct variety.

•**Wild asparagus:** Not really wild at all, asparagus has spread over most of the Midwest to grow uncultivated. It is the same asparagus as modern, cultivated varieties and can be used the same in cooking. Look along field edges and around old homestead areas. Cut the stems near the ground with a sharp knife and leave a bit for seed. Wild asparagus will grow in the same area each spring.

Not quite as sweet or as large as their domestic cousins, wild strawberries are still tasty and can be prolific when in season, making them an easy treat for the wild forager.

Summer

Late spring into summer yields one of the tastiest wild treats: berries.

•**Berries:** Berries of several varieties are at their peaks in June and July. Blackberries, raspberries and mulberries are also ripening. Blackberries and raspberries grow on thorn-covered vines along field openings. Look for mulberries on small trees along forest edges. Any of these berries make great jelly, jam, pies or cobbles.

•**Cattails:** Yep, cattails! One of the most-available wild edibles on a year-round basis, cattails are at their prime this time of year. The tender, green shoots are edible by themselves, but the real cattail treats during the summer are their tight, green heads. The coating on the brown heads actually comprises tiny cattail seeds. Roasted on hot rocks, an open fire or even in the oven, roasted cattail heads can be eaten just like an ear of corn.

•**Dandelions:** Another salad green common in turf lawns, dandelions are perfect this time of year. Young dandelion leaves can be eaten raw, crushed with nuts into a pesto, wilted in hot oil or even boiled. The greens of the dandelion are on the bitter side, so they often get mixed with other greens to round out the flavor of a wild green salad. Dandelion flowers are also edible. Lacking the bitterness associated with the leaves, the flowers are often pickled, fried in fritters or just eaten as is.

Familiar to just about everyone who has ever had a lawn, the lowly dandelion can be a lifesaver in the woods. Every part of the plant is edible, including the roots in the winter months.





PHOTOS BY ANDREW MAXWELL



(top) Pawpaws are a tropical fruit that grows in the midwestern United States. With flesh that is a cross between a banana and a mango, pawpaws might just be the tastiest fruit you have never eaten. (bottom) Pawpaws ripen in the fall. As the fruit ripens, the flesh softens, and the fruit eventually falls to the ground. Just about every animal in the woods loves pawpaws, so keep an eye on them as they ripen and make sure you get to them first.

Fall

Fall is the time for nuts. Many Midwestern mast trees produce edible nuts. In areas lacking a heavy wildlife population, this mast can be found year round beneath the producing tree, but fall is the prime time for freshly fallen nuts and acorns.

•**Acorns:** Most acorns are edible, but not without some preparation. Acorns contain tannic acid, which must be leached from the meat of the nuts before they are edible. White oaks contain less tannic acid than reds, but the preparation methods are the same for both.

Start by shelling the acorns. Native Americans would leach the tannins from the acorns by placing the nuts in a basket and submersing them in clean, running water. After a few days in the water, the tannic acid would be leached from the acorns. If you don't have a source for clean, running water, you can boil acorns in a large pot until the water turns brown with leached tannins. Transfer the acorns to a pot of clean water and boil again until the water turns brown a second time. Continue the process until the water remains clear while boiling.

Once the acorns are prepped, dry them in the sun and grind them into a powder for very usable flour. Cleaned and dried acorns can also be eaten as is, like any nut variety.

•**Walnuts, hickories and pecans:** These traditional mast trees start to drop their nuts in midfall. Crack the shells with a heavy rock or nutcracker and pick the meat from the shell. Many of these nuts benefit from some aging before cracking and eating.

•**Lamb's Quarters:** Lamb's Quarters always looks dusty from a distance. The leaves are covered with fine white hairs. Lamb's Quarters is best eaten either steamed or boiled. Its leaves, stems and flowers are all edible.

•**Wild sunflower:** Sunflowers have been found in Native-American caves more than 200 years old, so they have been around for quite a while. Treat wild sunflowers as you would their cultivated counterparts: Roast the seeds and remove the shells before eating plain or adding to salads for a bit of toasty crunch.

•**Wild daylily blooms:** These are another autumn treat. Use daylily blossoms just as you would the purple violet flowers. Brush with an egg wash and dip in sugar. Use them in salads, as a garnish, or just munch on them as is.

•**Dogwood seeds/fruits:** Dogwood fruits are turning red this time of year. When squirrels start hitting the dogwoods, you know the fruit is just about ready. Be quick, though—it doesn't take squirrels long to clean up a tree. Dogwood fruit contains tiny seeds that are also edible. Dogwood fruit texture is creamy, and the flavor is floral and mildly sweet. It makes great jelly, pies or cobblers.

Late fall also yields a couple of my favorite wild foods: Pawpaws and persimmons, both of which ripen this time of year. Persimmons are more widely known than pawpaws.

•**Pawpaws:** With a custardy or soft, banana-like texture and a flavor that has been described as a cross between an apple and a mango, pawpaws might just be the best fruit you have never heard of. To tell if they are ripe, look for soft fruit that shakes easily from the tree. The pawpaw season lasts only a few weeks in late fall—and wildlife likes them, too—so be vigilant and check any known trees often for ripe fruit. Cook

them in pies, custards, cookies, breads or cakes. There is no wrong way to enjoy a pawpaw.

•**Persimmons:** Persimmons are best after a hard frost or light freeze. They soften and lose much of the bitter pucker factor they have when green. Persimmon jelly is a treat you won't soon forget.

Winter

Winter in the wild doesn't have the "panache" of other seasons, but there are still a few good things to eat. Concentrate on mast this time of year; tree nuts of all types are on the ground and at their prime.

•**Roots:** Caudill says winter is the time for roots. Unlike the other seasons, when plants are storing their energy in green stalks and leaves, winter sees all those stores head to the root system. Cattail roots are prime this time of year; treat them like potatoes and roast or boil and mash them.

An interesting winter treat is greenbrier plants. Craig says he enjoys stripping the thorns from a section of greenbrier stem and chewing it like gum. The stored sugars in the stem give it a sweet taste. Caudill recommends chewing the juice and flavor from the stem piece and then tossing the remainder. The stem is very fibrous and can lead to digestive issues if a large amount is consumed.

Mushrooms

Mushrooms can be found spring, summer, fall and even into early winter. For the purpose of this article, I have set aside a separate section for mushrooms due to safety concerns.

While most mushrooms are edible, a few can be deadly. For this reason, new mushroom foragers, in particular, should team up with someone who understands the difference.

Joe Lacefield, a private lands biologist for the Kentucky Department of Fish and Wildlife, shared a few of his favorite varieties.

"In the spring, I look for morels," says Lacefield. Morels are easy to spot and an excellent mushroom for beginners because there aren't many lookalikes. Morels have a Christmas tree shape and a honeycomb-type texture.

A bit later in the year, Lacefield looks for chanterelle mushrooms. Chanterelles are yellow or orange in color and generally funnel shaped, with gill-like ridges along their underside. There are some poisonous mushrooms with a similar appearance, so this is one you should learn about with an experienced guide.

Moving into fall, Lacefield looks for oyster mushrooms, chicken of the woods, hen of the woods and puffballs.

Oyster mushrooms actually grow throughout most of the year but tend to be hosts for bugs during the hot summer months, making fall and spring better times for collecting.

Caudill offered up one more important tip: "Each person is different and reacts to wild plants in different ways. At Nature Reliance, we recommend that people try new things in a gradual progression. Try a small amount of a new wild edible and give it some time—up to a day or two—to work through your entire digestive system. Often, a plant that tastes good going down can have a major effect on your system once digested. Make sure new foods agree with you before consuming larger quantities." **MP**

"Everyone has heard tales of poisonous mushrooms, but there are a few other plants out there that can put you in the hospital—or worse."



Chanterelle is a tasty mushroom easy for the beginner to identify. Nevertheless, it is always a good idea to learn mushroom hunting from an experienced forager.



• GENERAL •

Modern-Day GOLD Prospecting

HOW TO START
SEARCHING FOR
NUGGETS TODAY

By Paul E. Moore

THE SEARCH FOR GOLD IS SUCH A POWERFUL, DRIVING force that it is hard to adequately describe its gravity. The quest for this precious metal has led people across the globe. It has caused them to abandon all they know, to lose their homes, their families—and their sanity. Gold has led people to steal, kill and even commit suicide when it is lost.


What makes this material such a powerful force?

For centuries, gold has been the means by which we judge wealth. It is the backing entity behind the wealth of our entire country. We built the most impenetrable fortress in the world to store it at Fort Knox, Kentucky. We incorporate the word, “gold,” into countless sayings, movie and song titles. We even use it to compare the quality of other things: “This is the gold standard.”

People have been searching for gold in America ever since the first pioneers entered this country. Some were successful, some not. The early gold prospectors are legendary, as is the great California gold rush that started in the mid-1800s.

And the quest continues today.

PHOTO BY DAVID PAUL MORRIS / GETTY IMAGES



**“ ... many prospectors
enjoy a lifetime on
the stream with only
a gold pan and the
simplest of gear.”**



The Gold Rush

People often think about or refer to the California Gold Rush; it was definitely one of the major events in U.S. history. But California was not the first or only place to generate a gold rush in the United States, and gold rushes have never been particular to America. Any time a large deposit of gold has been discovered, there has been a subsequent gold rush. The same would also hold true if a large deposit were discovered today.

(above) Gold prospecting today may include some modern conveniences, but the methods are still basically the same as they were in the 1800s.

(below, left) A trommel helps prospectors move and wash large volumes of material.



PROSPECTING STARTER KIT

- > Gold pan
- > Shovel
- > Hand trowel
- > Hand scoop
- > Plastic buckets
- > Classifiers
- > Snuffer bottle
- > Small storage bottle
- > Portable stream sluice box (optional)

In the United States, there have been numerous gold rushes of varying sizes, especially throughout the Western states. Many U.S. cities originated as gold mining encampments. One of the first major gold rushes occurred in north Georgia, where the town of Dahlonega is now located. (That gold rush contributed to the forced removal of Native Americans and the infamy of the Trail of Tears.)

Gold rushes occurred in other countries, as well. Australia, Canada, New Zealand and South Africa all share in the history of the gold rush. In fact, Johannesburg, the largest city in South Africa, was established after a discovery of gold and the subsequent Witwatersrand Gold Rush in the late 1800s. That discovery produced some of the largest gold deposits found to date.

Gold Mining

Most of the gold produced today comes from large open-pit mines and, to a smaller degree, from underground mines. Since the Witwatersrand discovery, South Africa led the world as the major source of gold for many years, producing as much as 50 percent of the total gold mined annually. It was displaced as the number-one gold producer in 2006—but not because the country is lacking for gold. It is estimated there are as many as 6,000 tons of gold yet to be uncovered in South Africa.

PHOTOS BY TOM SMITH

China has led the pack for gold production in recent years. In fact, numbers from last year indicate that China produced as much as three times the gold of South Africa in 2014. Also ranking near the top are Australia, Russia, the United States and Canada.

The United States still produces a large amount of gold each year; most of the mining takes place in Nevada and Montana. The country has boosted production in recent years as a result of the reopening of mines in Montana.

Prospecting Today

Most prospecting done by individuals today is for recreation or hobby. Sure, there are people still out there looking to make a living off the gold they find—and some do, although it is typically a meager lifestyle. Many of these folks live out of campers, scratching out an existence prospecting.

It is estimated that only about 5 percent of the earth's gold has been discovered. That may very well be true, but the odds of going prospecting, striking the mother lode and spending the remainder of one's life hanging out with the Donald Trumps and Warren Buffets of the world are probably less than winning the next Powerball.

Most gold prospectors today are playing the game for the same reasons people fish, hunt or play golf: It is their hobby and usually their passion. There is something about gold prospecting that most usually creates an addiction.

Today's hobby prospectors are not looking to strike it rich, although most certainly would not be averse to the thought. However, they realize the odds are against that happening. They simply enjoy getting out and searching, along with the camaraderie of sharing their passion with others. Most hobby prospectors do not find enough gold to pay for their travel and equipment—but they do find enough to keep them coming back for more.

Bitten by the Gold Bug

Tom Smith, a long-haul truck driver from Indiana, has been prospecting for several years now. He is a member of the Southern Indiana chapter of Gold Prospectors Association of America (GPAA) and has served as an officer in that organization for the past seven years. What started as a simple conversation led Smith and his wife to new paths in life they never imagined.

While on a trucking run through Reno, Nevada, Smith looked up Chip Hinchman, a childhood friend with whom he had lost touch after high school. They “survived” school together and learned to camp and enjoy the



(above) Indiana prospector Tom Smith (left) and friend Chip Hinchman scoop material into a sluice box. Pictured in the foreground is one of Smith's homemade classifiers. (below) Pictured in this pan: approximately 1½ grams gold. It takes 31.1034768 grams to make 1 troy ounce of gold.

outdoors in Boy Scouts, but life had taken them in different directions since. However, over dinner in Reno, Hinchman invited Smith up to pan for gold on his next trip through the area.

That first effort at gold-seeking was enough to hook Smith for life.

Take the Plunge

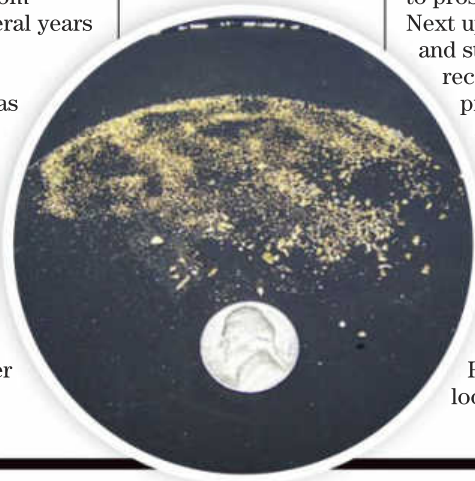
Getting started in gold prospecting is actually fairly simple. The first step is to locate a place to prospect, either on private or public land. Next up is to gather a few tools of the trade and start learning the ropes. Smith highly recommends hooking up with a local gold prospecting club to get started correctly and for advice on the how-to and where-to aspects.

A gold pan is the primary tool every prospector must own.

Smith explains, “The gold pan is always the first thing you use—and the last thing you use—to find your gold.”

The pan is first used for sampling an area to see if any gold flakes turn up.

Panning is also used as the final step to look for gold after stream material has



More-advanced prospectors such as Tom Smith use mechanical devices called “dredges” to suction up streambed material to wash through the sluice box.



Some sluice boxes are designed to work in the stream-flow. A highbanker like this one is used on the bank, and a mechanical pump provides waterflow.



“The simple method is to shovel stream-bottom sand, rock and sediment by hand onto classifiers and continue washing it down until it is sized for panning.”

been processed down from large to panning-sized material.

Along with the pan, prospectors need a shovel or hand trowel, a classifier (a classifier is simply a screening apparatus that helps sift or “classify” the material pulled from a creek or streambed) and a plastic bucket. Most people use a small snuffer bottle to suction up flakes of gold from the pan and perhaps something like an aspirin bottle for storing the found gold. That is about all that is needed to get a taste. More and bigger equipment is likely to come after the “addiction” takes hold.

Many hobby prospectors build a lot of their own equipment, often from remnants or scraps from other projects. Smith has built classifiers using leftover wood and hardware cloth.

Prospecting 101

Smith and most other hobby prospectors are searching for “placer” gold. This is gold that has washed, eroded or otherwise been moved from its original location and placed in another—typically, a streambed. Sometimes, this gold is in nugget form, but most usually, it is more like flakes or specks. It is even referred to as “flour gold,” because it is often very similar in size to flakes of flour.

The prospector locates an area to sample, scoops up some of the stream bottom and begins panning to look for traces of gold. Gold is 19 times heavier than water, so as it washes downstream, it settles to the bottom, often working down through the rocks and sediment on the streambed. Once gold is located, or if the area is known to have gold present, the more-involved work begins.

The simple method is to shovel stream-bottom sand, rock and sediment by hand onto

PHOTOS BY TOM SMITH / GOLD FLAKES PHOTO BY THINKSTOCK

Lost Dutchman's Mining Association is one of many private gold-mining organizations that own potentially gold-productive property throughout the United States.



GET STARTED

classifiers and continue washing it down until it is sized for panning. Some public land regulations only allow for the use of a hand trowel instead of an actual shovel. Experienced prospectors use mechanical devices called “dredges” to suction up material from the stream bottom. Material, whether suctioned up by dredge or dug by hand, can also be put through a sluice box, which allows prospectors to move and wash much more material than they could by hand.

A sluice box is constructed to simulate the natural depositing of placer gold in a stream. The force of the water carries gold downstream, the same way other sand, rocks, minerals and sediments are carried. Because gold is much heavier than water, it settles in eddies and other areas where the water slows enough to allow it to sink. In a sluice box, there is a constant flow of water over riffles that create eddies so the gold can settle and be captured.


Simple sluice boxes are placed in the stream, and the stream flow is used to wash the material within the box. Another version is called a “highbanker,” which, as the name suggests, is placed on the bank. Water flow is fed to it by

use of a mechanical pump. Either version is a major upgrade from hand classifiers and a plastic bucket.

An even bigger and more advanced method of classifying material is by using a machine called a “trommel.” This device has a hopper into which material is shoveled or poured. It is then washed down through a rotating screened drum. The force of the water and the machine action are designed to break up the material, push out the larger chunks of rock and classify down the smaller material into a sluice box or other area for further processing.

Once Bitten ...

Nevertheless, you don't need all the fancy equipment, portable generators and water pumps to get started. In fact, many prospectors enjoy a lifetime on the stream with only a gold pan and the simplest of gear. The first step is to just get started. Once bitten by the gold bug, only time will tell how far the addiction will take hold.

To learn more about getting involved in a state or local gold prospecting club, visit www.goldprospectors.org. 

> There are lots of places throughout the United States where gold prospecting is possible. Many public lands allow prospecting, but regulations vary, and some locations require permits. Always check directly with the property for clarification on legalities before heading out.

Various gold-prospecting clubs and commercial operations are also possibilities. Prospectors can even purchase material and have it shipped to them so they can classify it down and pan at home.

Again, lots of information about prospecting and getting started is available by visiting the Gold Prospectors Association of America (www.goldprospectors.org).

• GENERAL •

Protect Your Garden

TIPS AND TRICKS TO KEEP CRITTERS AWAY


By Charles Witosky

You've researched the plants that grow best where you live, what time of year they are most likely to flourish and how to ensure they grow big and strong. Maybe you're growing fruits and vegetables so you can become less dependent on genetically modified food or just to save money. Maybe you simply want to bring some color to your backyard.

In any case, it can be devastating when the day after those plants blossom or your vegetables ripen, you find that almost all of them have been eaten away by any number of animals. In this article, we'll be discussing the many ways to prevent your garden from being eaten and trampled upon by every animal in your area. Each animal that plagues your garden has specific preferred plants, fruits and vegetables. In addition, each animal's chosen delicacy necessitates different countermeasures.

Of course, there's no need to protect your garden from an animal that would never come around your house. If you happen to live in the middle of a city, for example, and have a small garden behind your townhouse, there's no need to build a 10-foot-high fence to protect your garden from deer, because few deer wander that far into a city (not to mention the zoning laws that would interfere with building such a high fence).

So, before you spray your garden with coyote urine, build an electric fence or set underground traps, read on to find out ways to prevent animals from being attracted to your garden in the first place. If animals do show up, you'll know the least expensive, most effective way of getting them out for good.

A close-up photograph of a lavender plant. A single stem with a cluster of small purple flowers is in sharp focus on the left side. The background is filled with more lavender foliage, which is out of focus, and a dark, textured ground surface is visible at the top.

**“Voles, moles
and groundhogs
eat anything
and everything
but will always
attack your root
vegetables first.”**

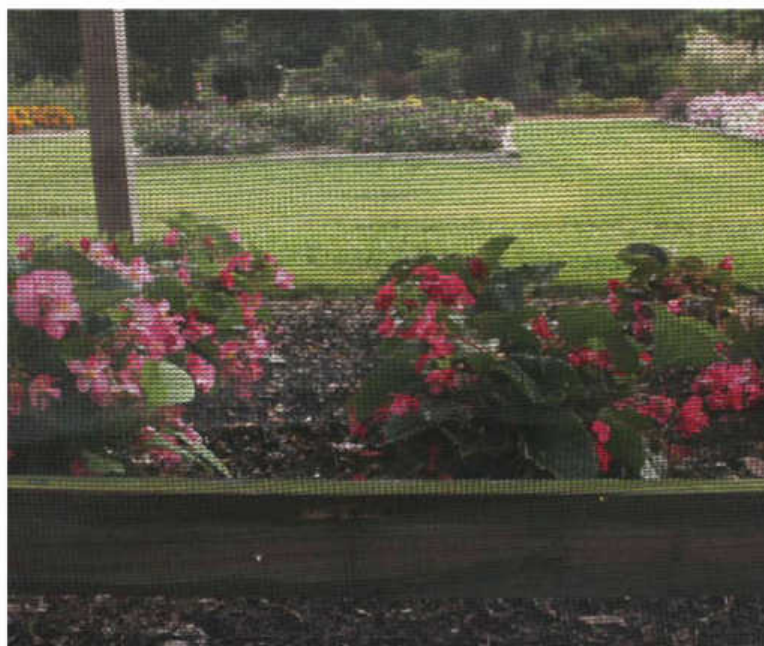


Deer

The good news about deer is that they don't like being around people. When they see a human, they run. If you see a deer in your garden from inside your house, open your back door rapidly, and the deer should run away. But, of course, you can't watch your garden all day long.

First off, know what to plant. Deer love some plants and hate others. Unfortunately, a lot of the plants they love to eat are also the ones you love to eat. However, a good deal of the plants deer are not attracted to are very beautiful and can contribute to a bright, well-kept garden.

While deer will eat almost every fruit and vegetable under the sun, they're most attracted to beans, squash, cucumbers, eggplants, corn and every kind of berry. Non-fruit-bearing plants that deer enjoy are chrysanthemums, clematis, roses and azalea bushes. Again, this does not mean you should not cultivate these plants; just be aware that these will immediately attract deer to your garden.





(clockwise from top left) One of the more effective ways of keeping short, grounded animals from getting to your plants. • Rabbits dislike a raised garden bed, because it exposes them to predators. • Much like tall pots, hanging pots will protect your garden from nonclimbing animals. • If you get the right netting material, nonburrowing animals won't be able to get through.

Plants that deer will not eat because of their taste are allium, artemesia, baptisia, buddleia, clethra, digitalis, festuca, lavender, miscanthus, monarda, nepeta, salvia and viburnum. (Naturally, none of the plants deer dislike are edible by humans.)

Does this mean you can only have a garden that's good to look at? Not at all. Here are some good ways to keep deer out of your garden.

1. Distract them. On top of enjoying all your delicious fruits and vegetables and many of your most beautiful plants, deer also enjoy eating birdfeed. While they will be in competition for this feed with every other animal that passes through your yard, it may very well distract them enough to keep them from wandering into your garden. And while buying enough feed to consistently keep them out may cost a good deal of money, it's nothing in comparison to the cost of repairing the plant damage they would do to your garden.

2. Spread human hair in your garden. As I pointed out already, deer don't enjoy interacting with humans. If you can let your presence be known, even when you're not actually outside, deer will stay away. This method is hit and miss but works best on fawns, which are particularly wary of humans. Save your hair from your next haircut or just ask your local barber or hairdresser for a bag of hair they would otherwise throw away.

3. Spread predator urine. Mountain lions, bears, wolves and coyotes are the main deer predators. Gathering a substantial amount of urine from any of these animals would be a dangerous endeavor, so we recommend buying a bottle of sprayable coyote urine from your local hardware or outdoors store. This works better than human hair, but it is still not completely effective. Deer will be scared off for a while, but they sometimes eventually realize it is just the scent and not any actual coyotes.

4. Scare them off with sound. Deer like a calm environment, one that does not startle them or change rapidly. This is why a sudden ding or rattle is the perfect way to scare a herd of deer away. Your best option is a loud motion detector, but if that would bother *you* too much every time you stepped near your garden, a jingly wind chime will also do the trick. Set it out in a windy area, and let it do its job.

5. Build a fence. Finally, if none of the above options keeps deer out of your yard, build a fence. It must be a minimum of 10 feet high and electric, if possible—deer are tenacious.

Squirrels

Unfortunately, there is no fence that would ever obstruct a squirrel from entering your garden. Worse—they will eat virtually any plant under the sun, as long as it is not poisonous.



“Raw eggs work as a wonderful fertilizer—and rabbits also happen to detest the smell of them.”

And, they will often take a bite of a not-yet-ripened fruit or vegetable, realize it does not taste good and stop, leaving a whole plant of half-eaten produce in your garden.

Just as with deer, you can distract squirrels from your garden by setting out bird and squirrel feeders. There are also a few plants that squirrels will stay away from. They include snapdragons, dianthus, sedum, gaura, penstemon, lavender, Russian sage, lilacs, daffodils, columbine, salvia, dahlias and peonies.

1. Attract predators. If you have a dog, you have a permanent predator that is happy to guard your garden every day of the week. If you don't, try attracting birds of prey to your yard. You're already at an advantage if you have a wooded backyard, because this will encourage nesting. If you are not near a natural water source, consider adding a birdbath. Finally, adding a nesting box in your yard will actually encourage birds to breed there and keep them in your yard for years to come.

2. Spray your plants. There are a number of different, nonpoisonous squirrel deterrents you can spray on and around your plants. Some of the better ones are vinegar, water mixed with cayenne pepper or a concoction of hot sauce, vinegar and water. Spray it on the surface of fruits and vegetables, and squirrels shouldn't even go near them because of the smell. If they

do happen to take a bite of anything, they won't try any others.

3. Netting. Netting made specifically to protect plants from squirrels and other rodents will be your best option. You have the option of either building a structure that encloses your garden with netting, or you can just lay netting on top of your plants.

Rabbits

Fortunately, rabbits are the easiest animals to keep away from your plants—they're naturally timid and can't climb. Unfortunately, they have large appetites and repopulate rapidly.

Rabbits' favorite plants include pansies, petunias, lilacs, roses, apples, pears, blueberries, blackberries, raspberries, kiwi, beans, peppers and lettuce. Plants they tend to stay away from are veronica, Siberian iris, salvia, peonies and daylilies.

Many of the previous methods of keeping your garden pest free are applicable to rabbits, such as spreading coyote urine or spraying your plants with a spicy mix. However, there are a few rabbit-specific ways to keep them out of your garden.

1. Raised garden beds. A raised garden bed will deter rabbits from entering your garden, because they have a natural fear of being exposed. They like staying low and secluded in the grass to avoid being spotted by a bird of prey or charged by a dog. Plus, if you build a raised garden bed, you also get the benefit of better soil drainage.

2. Hang your plants or plant them in large pots. Rabbits can't jump very high. You can build a structure for hanging your herbs. Or, plant whatever you like in large pots.





3. Raw eggs. This option is the number-one approach if you're specifically trying to detract rabbits and boost the health of your garden. Raw eggs work as a wonderful fertilizer—and rabbits also happen to detest the smell of them. Place the eggs and crushed shells in your soil, and your job is done.

4. Build a fence. No need for a 10-foot electric fence here. A solid fence with no gaps will do; build it 12 inches above ground and 6 inches below.

Voles, Moles and Groundhogs

Voles, moles and groundhogs are arguably the most difficult animals to keep out of your garden. They live in every climate. They burrow underneath the ground and even create underground tunnel systems. They repopulate as fast as rabbits. They eat their own weight in food every 24 hours. Because of all these reasons, it's almost essential that you fight fire with fire when dealing with underground pests.

Voles, moles and groundhogs eat anything and everything, but they will always attack your root vegetables first. These include beets, potatoes, carrots, pea seedlings and anything else that grows underground. Above ground, they'll eat all your fruits and vegetables at any point, regardless of how ripe they are. These animals don't mind the taste of an unripe fruit and need to constantly keep themselves fed.

Nevertheless, there are a few plants they are simply not attracted to. These include daffodils, allium, ornamental onions and grape hyacinths, to name a few.

Some of the previously mentioned techniques will work as deterrents, such as attracting birds of prey, spreading coyote urine and


spraying your aboveground plants with a spicy mix. However, if the problem becomes too overwhelming, you might have to consider killing these pests.

Castor beans. The castor bean has a long history of being used in both Eastern and Western medicine, food preservation—and assassinations. Yes, the castor bean is where *ricinus communis* comes from (commonly known as "ricin").

The castor plant is tall, colorful, beautiful and has delicious-tasting beans—which is why, if you plant one in or near your garden, you are likely to have a natural remedy to your underground pest problem.

There are some risks involved in planting the castor plant, but if you're careful, nothing bad will happen. Obviously, do not plant a castor plant if you have outdoor pets or small children. Chewing and swallowing a castor bean is extremely deadly. However, handling one is not harmful at all. It is only the contents of the bean that are dangerous.

Castor beans and seeds will naturally attract and kill all animals that come in contact with them. While this is probably a last resort when dealing with pests, it is a very beautiful plant you might like to have in your yard.

When you got into gardening, you did so for any one of a number of reasons: You wanted to live off the land, lead a more sustainable lifestyle, reduce your carbon footprint, enjoy the beauty and bounty of nature or just grow gifts for your friends and family. No matter your reasons, pests will get in the way of your garden growing to its full potential. Nevertheless, if you follow the above suggestions, you should be able to stop the animals in their tracks. Happy gardening! 

(from left) **Vinca**—favorite of many animals • A single rabbit can eat an entire petunia plant in a day.

• The peony is an animal-resistant plant that is more like a bush. It is better for exterior decoration than planting in a garden.

• Every animal on earth will eat roses. • Salvia is easy to grow and is animal resistant.





· SHOOTING ·

Make Your Own Gun Cleaning Solvent

LEARN HOW TO STIR UP SOME 'ED'S RED'


By Thomas Tabor

I LIKE BEING AS SELF-SUFFICIENT AS POSSIBLE. BEING INDEPENDENT AND SELF-RELIANT ARE EMPOWERING; AND WHEN THERE IS MONEY TO BE SAVED IN THE PROCESS, THAT ONLY ADDS TO THE BENEFIT.

I make many of my own leather goods, sometimes make my own knives and tools and frequently turn what some folks see as worthless junk into useable products (over the years, that seems to have become my preferred method of recycling).

I am an avid shooter and hunter, so when I discovered a few years back it was possible for me to make my own firearm bore-cleaning solvent and stop relying on those tiny and very expensive bottles of commercially made cleaners, I got my rear end in gear and made my first batch. And, from that point forward, I've always had a good supply on hand that costs me a mere pittance of what I used to pay to clean my rifles, pistols and shotguns.

PHOTO BY THINKSTOCK

A wooden stock rifle with a brass receiver and a cleaning kit are laid out on a weathered wooden surface. The rifle is positioned diagonally from the bottom left towards the top right. The cleaning kit includes a long silver rod with a wooden brush at one end, a black brush, a white plastic tool, and a black plastic tool. A pair of yellow safety glasses is at the top left.

“Ed’s Red can be made right at home—and without the need of any specialized equipment or mixing procedures.”



Ed's Red Solvent

As an active, competitive high-power rifle shooter, C.E. (Ed) Harris used a great deal of rifle bore cleaner and became disillusioned with the commercially available products. He felt that the products sold by most sporting goods dealers had become far too expensive, and many times, they did not perform as well as he liked. So, with the advice and assistance of an organic chemist, Ed began working on his own bore-cleaning formula.

At the heart of what would eventually become known as "Ed's Red," was Frankfort Arsenal Cleaner No. 18 that appeared in *Hatcher's Notebook*, published in 1947 by Julian S. Hatcher. The problem was that some of the component chemicals used to produce that solvent had become difficult to obtain in recent years, making it necessary for Ed to find substitutes for those ingredients.

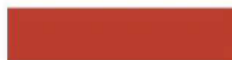
The final "recipe" Ed settled on was based on the proven principles of combining two polar and two nonpolar solvents. The end result was a bore cleaner that worked similarly to the standard military-issue rifle bore cleaners such as Mil-C-372B.

Making your own Ed's Red is easy, but for folks who prefer to buy the commercially available product, it can be purchased in the usual small quantities from supply houses such as Brownell's.

Ed's Red can be made right at home—and without the need of any specialized equipment or mixing procedures. By simply combining a few common ingredients that are available at local hardware and auto parts stores, you can easily produce a cleaner many shooters, including me, find more effective at removing caked carbon and abrasive primer residues than many other cleaners.

(above) Cleaning products come in various packages and choices. This kit from Hoppe's is all inclusive, with everything needed to clean virtually any type of firearm. When the tiny bottle of bore-cleaning solvent runs out, however, it is great to have a supply of homemade solvent to take its place.

(below) There is no shortage of commercially available bore-cleaning solvents. They all share one thing in common: They are expensive. (Ed's Red can be purchased commercially (as shown, center front) from places such as Brownell's.)



Cost Savings

A shooter can expect to pay from about \$8 all the way up to about \$12 or more for a tiny, 4-ounce bottle of the commercially produced bore-cleaning solvent. That might not sound like a big expenditure—as long as you don't use too much of it. But if you find yourself complaining about that \$3 or \$4 per-gallon gas you put in the tank of your vehicle, that is nothing compared to what you are paying volumetrically for that bottle of solvent: Based on a per-gallon cost, that \$8 bottle of solvent in reality is costing you a whopping \$256/gallon. And if you prefer using the more expensive stuff at \$12 a bottle, that works out to a staggering \$384/gallon. (If those figures aren't enough to get an active shooter thinking about making their own solvent, well, I've got a \$500 box of 30-06 shells I would certainly like to find a buyer for!)

Just How Effective Is Ed's Red?

I have used my own homemade Ed's Red for several years now and have found it very efficient at getting out all the products of combustion from the inside of my rifle, shotgun and handgun barrels. In addition, it works great as a general-purpose solvent for scrubbing other types of gun parts, as well as most other items that have been contaminated with grease, dirt, etc. It seems to provide good corrosion protection, and its residual abilities frequently eliminate a need for oiling your firearms if you only use them intermittently.

Some shooters even feel their homemade Ed's Red works just as well as a light lubricant, but for long-term storage or when your firearms have been exposed to harsh environmental conditions and/or saltwater exposure, it would probably be advisable to use good-quality protective oil intended specifically to provide a barrier from those conditions.



To keep your firearms shooting accurately, it is important to clean them on a regular basis. Additionally, if you do a lot of shooting, chances are pretty good you will go through a considerable amount of bore-cleaning solvent.



PHOTOS BY HOWARD COMMUNICATIONS; PUBLIC DOMAIN

I have shared my Ed's Red with several fellow shooters, many of whom have come back to me with glowing reports about its effectiveness. Some even felt it cleaned their firearms more thoroughly than any commercially sold solvents they had tried.

Make Your Own Ed's Red

The only real drawback to making your own Ed's Red is that some of its necessary chemical components are sometimes only available by the gallon. However, those same chemicals have common uses around the home and shop, so if you have some ingredients left over, the unused portion won't go to waste. If you make more Ed's Red than you can realistically use on your own, you can share it with your fellow shooters. They might even feel inclined to kick in a few bucks to help defray your costs, particularly when they see first hand how effective it is at getting the crud out of their gun barrels.

While the basic Ed's Red formula is not designed or intended to remove copper fouling, you can add lanolin to the ingredients in order to discourage the lead and copper buildup. Nevertheless, I have heard glowing reports from many shooters who feel Ed's Red's cleansing ability is so good that when used on a regular basis, the copper and lead don't seem to be as problematic as when other solvents are used.

If you choose to include lanolin in the recipe, you will likely find it is a little harder to mix in than the other chemicals, simply because of its consistency. Possessing a thickness similar to a dense form of grease or lard, it takes a little stirring and mixing to get it to blend together with the other chemicals.

For better mixing results, I like to pour a small amount of my Ed's Red directly into the lanolin and then mix it aggressively until the ingredients are well blended. After that, I pour that concentrate into the full batch and continue to stir it until I'm sure it is thoroughly mixed together. After that, the lanolin seems to stay blended with the other ingredients (but occasional stirring is never a bad idea).

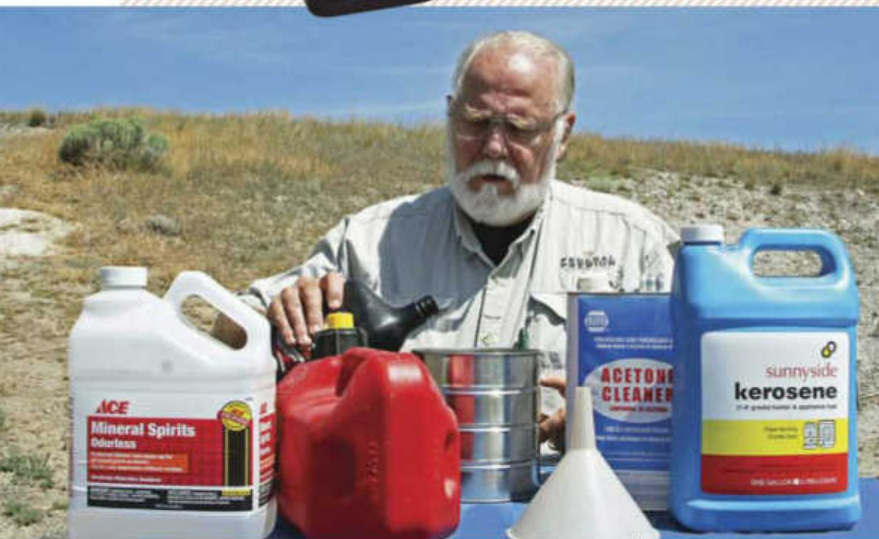
The Ed's Red Formula

- 1 part Dexron II, IIe or III automatic transmission fluid (GM Spec D20265 or later)
- 1 part K1 kerosene
- 1 part aliphatic mineral spirits—federal spec TT-T-2981F (CAS# 64741-49-9) or Stodard Solvent/Varsol (CAS#8052-41-1)
- 1 part acetone (CAS#67-64-1)

Optional: up to 1 pound of anhydrous lanolin, USP per gallon. Alternatively, lanolin-modified topical lubricant can be substituted (available at your local drug store).



(from top) To make your own batch of homemade Ed's Red, the only ingredients you need are mineral spirits, automatic transmission fluid, kerosene and acetone. For additional protection against copper buildup inside the bore, you can add lanolin. • Because some of the components in Ed's Red are considered hazardous and toxic, mixing them is best done outdoors or in a well-ventilated area. • Homemade Ed's Red does a thorough cleaning job, removing all the normal grit and debris found inside a barrel. In this case, it was used to scrub out a shotgun barrel. As you can see, the debris consists of both burned and unburned powder residue, as well as the other products of combustion. • Ed's Red is easily distinguished from most other bore-cleaning solvents by its characteristic red (or pink) color.



bore-cleaning solvent bottles from when you used to buy the commercially made stuff, hang on to them to be recycled and used for your homemade Ed's Red. Those small containers are much easier to use and more convenient when it comes to the actual gun-cleaning tasks.

Safety Issues

A couple of the ingredients in the Ed's Red formula are considered hazardous and could pose a health and/or fire hazard if not handled and used properly. Proper precautions call for mixing those ingredients outdoors or in a well-ventilated area. It is important to avoid any open flames or sparks in that work area. Eye and respirator protection are also advised.

Many of the component parts in the Ed's Red formula, as well as the final product, are flammable and harmful if swallowed. For that reason, use common sense and caution while mixing and storing it.

If you would like more information about the proper handling and the hazards associated with these chemicals, review and follow the recommendations contained in the MSDS reports, which can be obtained online at: www.MSDS.com.

Storage

Mixing and storing the final product must be in containers that are safe and resistant to those chemicals. Some plastics will not tolerate a couple of the chemical components used in the Ed's Red recipe.

A clean, 1-gallon, metal, chemical-resistant, heavy-gauge PET or PVC plastic container should do fine. An NFPA-approved plastic gasoline storage container will also work. Avoid using containers made of HDPE, because they can allow the acetone to evaporate, and the ER in acetone has the ability to attack that material. If that occurs, it can certainly result in a potentially big mess. A large, clean metal coffee can or metal bucket can be used for the actual mixing process, after which the final product can be transferred to the storage container.

After I have completed an Ed's Red batch, I generally transfer some of it into a smaller container I keep at my workbench and store the remainder until needed. All of the final product and the component ingredients should be stored in a cool environment and away from sparks or flames, as well as from direct sunlight. If you have any old



A Win-Win

Saving money is always a good thing, but when you can actually come up with a product that, in many ways, is equal to or even better than what you've previously been using, it's a win-win situation. I've tried many bore-cleaning solvents through the years and still have many of those in my gun-cleaning gear today. However, in most cases, I now simply grab a bottle of my homemade Ed's Red.

Maybe one of these days, I will use up the commercially produced stuff ... then, I will have more containers to store my homemade Ed's Red in. **MP**

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10 PRO TIPS TO HELP YOU NET MORE COYOTES

TRICKS FROM A PELT-HUNTING VETERAN AND
WINNING CALLING CONTEST COYOTE-CHASER

By Patrick Meitin

I CALLED IN AND KILLED MY FIRST COYOTE WHILE I WAS STILL IN MIDDLE SCHOOL. That was a major score, not only providing a real rush, but a 'yote fetching \$55 at the local fur buyer. That was big money in the late '70s, especially for a 14-year-old.

Immediately out of high school and struggling to start an outfitting business, fur put food on my table and fuel in my Land Cruiser. This involved mostly trapping but also non-stop varmint-calling when conditions dictated. I learned a lot about coyote-calling via persistent trial and error. It wasn't long before I was winning frequent coyote-calling contests.

My livelihood now no longer depends on fur market whims, but I've never lost the coyote-calling fascination. Whether shooting to save more whitetail fawns or for winter sport, I still receive a rush of adrenaline every time a coyote lopes, slinks or streaks into my calls.

It's always fascinating to communicate with another species, but nothing responds more greedily than a hungry winter coyote. I recall one big mountain dog called directly off a winterkilled elk. He was so full of elk meat, he regurgitated handfuls after death. Yet, he still came voraciously to the cries of a suffering rabbit—testament to the fact coyotes don't have to be starving to respond to a varmint call.

Whether for fun, profit or winning a calling contest, here are 10 tips for getting more from your coyote-calling efforts this season. ➡

Get away from civilization to find more willing coyotes

Less hunting pressure equals easier prey. I invested a lot of time luring my first coyotes with calls. I was without a driver's license and limited to farms and pastureland within walking distance from my suburban home. I was playing to coyotes that had heard and seen it all, so my calls more often than not met with mocking yipping and barking.

Since that time, my most successful coyote-calling forays involve adventures into the middle of nowhere: lonely sage deserts, hours of pounding over bad roads to reach the deepest reaches of mountain habitat, and lonely plains where you seldom encounter another human. Coyotes are quick studies. If they've been called to, even minimally, your job is made that much harder.

The farther from civilization you travel, the more coyotes you will kill.

Call in places others overlook

Conversely, I've also called plenty of coyotes close to civilization but in areas others easily overlook. This might include parking at the city landfill and walking a short distance away—something that probably hasn't occurred to most. One of my all-time consistent calling spots was behind a bustling dairy. Common sense would dictate that the clank or clatter of that major operation would have spooked any wary coyote. Nevertheless, a combination of the dairy's bone yard and a complete lack of hunting pressure made it consistently productive.

During calling contests, one of my biggest secrets was parking and walking off major highways. Rutted ranch roads are slow going and time consuming. Pavement makes it easy to put distance between stands. I can't tell you how many coyotes I've called near interstate highways within earshot of whooshing traffic. No one else considers it, so those coyotes remain clueless.

Find a roadside cut to hide your vehicle and walk 200 or 400 yards away from the road before setting up. There's really no need to walk miles; coyotes are used to the bustle.

Always mind the wind

No matter where you call, setting up while heeding the wind is imperative. While calling efforts are most productive during still days or those with minimal wind, human scent still drifts far on thermals and light breezes.

To begin, I borrow a page from the deer hunter's playbook by bathing in scent-free soap and avoiding aromatic foods or tobacco smoke. I store a basic scent-elimination



While traveling far from civilization is most often the trick to more-productive coyote calling, don't overlook areas close to town that are simply ignored by other hunters. Calling close to highways is one such ploy.

"During calling contests, one of my biggest secrets was parking and walking off major highways."

coverall in a plastic tub or scent-free bag and don it before each stand, returning it to the scent-free container before jumping back into my truck.

There are two approaches to the wind issue: selecting topography to make it difficult for approaching predators to arrive downwind of you or setting up so you can cover downwind sectors with long-range varmint rifles. If any coyote approaches downwind and hesitates even momentarily, take your shot, even if it is a long one.

Mesas or steeply falling terrain overlooking flatter ground, wind blowing up the face, are a good solution. Alternatively, occupy sharp bottoms—arroyos or washes—on still mornings, cool air carrying thermals down the cut, while you monitor surrounding hillsides.

When dealing with moderate breezes, while monitoring lower ground, occupy knolls or points where breezes are more likely to carry scent well above surrounding landscape. How

you place remote electronic calls (more later) also helps manipulate coyote approaches according to prevailing winds. The successful coyote hunter is hyper-aware of wind and thermals and how each setup should be approached based on this insight.

Change calls until something rattles its cage

Being a coyote-hunting junkie, I do a lot of calling in new country. One thing this has taught me is that my favorite New Mexico or Texas call isn't necessarily the ticket in Colorado, Nebraska, Kansas, Nevada or Montana. In New Mexico or West Texas, where I've killed more coyotes than anywhere else, high-pitched cottontail calls normally serve best, even though jackrabbits are common in both regions. In Idaho, by contrast, a raspy fawn-in-distress call is more reliable, because deer prove more common than rabbits.

Choosing a rifle and cartridge best suited to the terrain being hunted is important to calling efficiency. For instance, while a quiet .22 Hornet might be well suited to thicker settings, a more powerful round is indicated in more open country, where shots are longer.



Experience will often dictate a call that works for you consistently in a particular region, but when things prove slow, it's sometimes smart to experiment with something different. Occasionally, you'll find that this approach opens the floodgates.



These are really the basics: high-pitched cottontail, coarse jackrabbit or raspy fawn calls. It pays to have an understanding of the most common prey species in your area, but sometimes, changing up, even in familiar country, does the trick. In the world of electronic calls, things really get wild—wounded woodpeckers, crying coyote pups or fighting raccoons, just as examples. Sometimes, these do the trick when standard rabbit calls fail. Day to day, a rabbit call is the first thing I'll try, but on days when nothing seems to work, trying the oddball stuff sometimes opens clogged drains.

Use rifle cartridges appropriate to cover and conditions

I'm a huge .22 Hornet fan. I've killed hundreds of coyotes with my love-worn Savage Hornet loaded with 45-grain Nosler Solid Base bullets.

It's ultra-quiet most of all but does lack the speed and flat trajectory of more-popular varmint rounds. On still days and in broken cover, where shots seldom exceed 250 yards, it has proven itself worthy. It inflicts minimal pelt damage (the reason I originally gravitated to the cartridge) and is quiet enough that on more than one occasion, I've shot one coyote from a pair—its mate having no idea what was happening and allowing another stationary shot. In more populated areas or farmland with livestock, farm machinery and outbuildings, the Hornet is ideal.

In open terrain, where shot distances stretch beyond 250 yards, and especially on running shots (more in a moment), my old .220 Swift (or more popular .22-250 Remington) makes more sense. The extra energy provides more reach and leeway for error on marginal hits. A 50-grain Barnes Triple Shock X (controlled-expansion bullet) pushed to 3,800 fps offers an ideal combination of flat trajectory, minimal pelt damage and the ability—with practice—to reach to 500 yards on calm days. That blazing speed also makes running targets viable, because you can aim at the animal instead of the open space in front of it.

Anyone hunting in windy conditions regularly—say, in Kansas—might be better served by one of the hotter 6mm rounds. My first all-around centerfire rifle was a .243 Winchester, which I used to put many coyotes on stretchers while I was still young, loading 90-grain FMJs to 3,200 fps. For the varmint-caller restricted to a single rifle, the .223 Remington represents an ideal compromise. A 55-grain pill pushed to 3,200 fps has accounted for a good many coyotes for me.



“It’s always fascinating to communicate with another species, but nothing responds more greedily than a hungry winter coyote.”

Learn and be willing to take running shots

Coyotes can prove shift. In many cases, they respond on the run and never slow down. Early in my calling career, I allowed many coyotes to escape while waiting for standing shots, whistling in an attempt to stop them—and regularly serving only to accelerate their pace. It’s also common to call in multiple coyotes on a single stand; the first offers a standing shot, and anything remaining typically scatters like quail. The ability to confidently make running shots adds to your total take.

For Eastern hunters, becoming proficient on running shots can prove a challenge, because there’s little opportunity for regular practice. As a Western denizen, I honed shooting skills on superfluous jackrabbits. There’s no better way to ingratiate yourself with cattle ranchers—especially during drought years—because five jackrabbits eat as much as



a cow in a single year. Jackrabbits are super-abundant in certain habitats and can provide a nearly nonstop supply of running targets.

To this day, if a coyote is running across open ground—a winter wheat field or short-grass prairie—inside 250 yards, and I’m carrying an appropriate rifle, that dog’s going to die.

Carry a shotgun

I started using shotguns for coyotes during nighttime, full-moon calling forays on New Mexico’s vast plains of San Agustín. These coyotes were normally out of reach, because pan-flat terrain made hiding a vehicle—and myself—difficult at best. On full-moon nights, we’d hunt in pairs, sitting back to back and calling, gunning down responding coyotes atop moonlit snow. The technique and shotguns both proved deadly effective.

During calling contests, I generally toted a rifle and shotgun to each stand. I’d hold the shotgun, lean the rifle within easy reach, addressing anything inside 60 yards with the scattergun and using the rifle on longer shots or for cleanup if more than one coyote arrived.

The shotgun, obviously, should be 12-gauge (10-gauge, if available, and you can also find proper shells) chambered for 3- or 3½-inch shells and fitted with a full or extra-full choke. There are a lot of shot shells offered in various buckshot configurations and branded for coyote use.

I’ve experienced more negative than positive results with any buckshot load, because there are too many gaps for coyotes to run through; this results in a lot of wounded, escaping dogs. I choose lead BBs or 2s, which provide DOA knockdown out to 60 yards with my old Mossberg 835 pump.



Use decoys

A relatively new development, decoys can really bring out the greed in wary coyotes. A coyote responds to a call expecting to find an easy meal. When he arrives to find an empty swale, valley or field, he becomes understandably suspicious. A decoy provides what he expects to find and also offers him something to focus on instead of you.

Motion decoys are especially deadly; a whirling or quivering rabbit or furry thing will grab his attention and encourage a sense of competition in a dog-eat-dog world. Other options include coyote decoys—to spark that competition—or lightweight rabbits or fawns. Check regulations in your state before using any battery-operated decoy to make sure it is within the law.

Purchase an electronic call with remote

Electronic calls offer many advantages over old-fashioned mouth calls—not the least of which is saving your lungs after a long day afield. Blowing a mouth call with heart for hours on end can prove exhausting, and as you become tired, your calls can become inconsistent or are issued without the urgency that brings coyotes running.

The best electronic calls (which aren't exactly inexpensive but ultimately worth the investment) include remote controls for operation from up to 200 yards. There are several advantages here. This allows you to manipulate volume or calls when a coyote is detected approaching. You can lower volume or quickly switch to a squeaking mouse, for instance, to coax them those last few yards for a shot. It also allows you to set it to better play the wind and even to position it to take

(left to right) While taking running shots at big game is considered sloppy hunting, on coyotes it is often par for the course. The ability to make running shots will greatly increase your take on shifty coyotes. • Never dismiss the use of a shotgun for coyote hunting, especially in thicker cover or in areas where multiple coyotes respond to calls. Choose a 3- or 3½-inch 12 or 10 gauge loaded with lead-shot BBs or 2s for the best results. • Decoys have emerged as a useful tool for serious coyote callers. They can give wary coyotes confidence to run into a setup for closer shots and also help you position them for better shots or to work the wind to your needs. • Coyote-calling, done correctly, involves a lot of work. If you are to consistently score big while predator-calling, you must work harder than the average guy, pushing to cover more ground and investing in just one more stand after a tiring day afield.



advantage of coyotes with an irritating habit of swinging downwind of calls and receiving your scent.

Electronic units, as hinted at earlier, also provide a nearly endless variety of calls. On those tough days when coyotes just aren't responding to standard screaming bunny or lost fawn calls, something completely off the wall can quickly turn the tables, sometimes out of purest curiosity.

Treat varmint-calling as a job, and you'll kill more yodel dogs

Those lean days right out of high school, scrambling for nickels and living by my wits, had the tendency to make me as venal as a day trader, forever conscious of fuel-burned fur versus fur put on stretchers. I'm also extremely competitive by nature. I treated calling contests seriously. I entered to win. This general attitude made me quite successful. I treated calling not as sport but as a job.

While the object of calling for most of us is to get outside and enjoy ourselves, your efforts will only pay as well as the time and energy you invest. If you want to enjoy consistent results, you must push harder, cover more ground and treat every setup seriously. This is especially true on slow days: Let down your guard, approach a stand without complete confidence and the belief that something will happen, and that's when opportunity knocks—leaving you unprepared. **MP**

· GENERAL ·

Bare-Bones Fishing

IN A JAM AND NEED TO CATCH A FISH? HERE ARE FIVE WAYS YOU CAN DO IT WITHOUT A FISHING ROD *By Charles Witosky*

HOW MUCH DOES A QUALITY FISHING ROD COST? \$500? \$1,000? More? And what for—a graphite shaft? Faster reeling capabilities?

While all these added features make fishing (and, by extension, life) easier, our country's pioneers did not have the benefit of these new technologies. Still, they were able to eat plentifully and healthily. The most popular ways of fishing for pioneers were by using nets, traps, guns and the occasional spear.

While each one of those options is feasible, there are other, even lower-tech ways of catching fish. Here are five \$0 methods for how to catch a fish without a rod.





Improvised Hook

Fishing line is tied to the safety pin with a regular fisherman's tie. Fishing with a safety pin in place of a hook is easy and almost self-explanatory. Simply throw your line with bait attached into the water, wrap your end of the line around your hand, and wait. After that, it's just business as usual. And you don't necessarily have to use a safety pin; some other items that will work as hooks are bent paper clips, a modified soda can top and even a bent thorn on a branch.

If no fish are biting because your hook is floating on the surface, attach some weight to your line. The easiest way to do that is by adding a coin to your line. Tape the coin (a penny will keep this project down to \$0.01) near the end of your line, close to the hook. An alternative to tape is using a pair of needle-nose pliers to bend the coin in half, clamping it around the fishing line.



Tie a safety pin to one end of your fishing line in place of a traditional hook.

“For bottle fishing, it’s actually best if you use artificial or already-dead bait ...”



The most primitive and most challenging fishing method: fishing by hand

PHOTO BY THINKSTOCK

One consideration when using an improvised hook and holding the fishing line in your hand is that if a larger fish bites, it will take a good deal more work to reel it in. You'll have to wrap the line around your hand as quickly as you can without losing the fish or having the fish pull you into the water. *This method should never be used when deep-sea fishing.*

2 Bucket Fishing

Bucket fishing is one of the lowest-tech ways of fishing—but it also presents some obstacles. The most obvious, of course, is not being able to get the fish into the bucket. However, fish are naturally cavernous-seeking creatures, so setting two buckets in shallow water will actually attract a lot of them, especially if you set just a little bit of bait in each bucket.

The problem arises when you actually step into the water to collect the fish. Most fish have a very strong sense of smell and can tell when a human (or any predator) is approaching. And if the fish don't smell you, simply stepping into the water will create a ripple large enough to scare them off.

So, because you can't step into the water, you have two options for how to catch the fish in the buckets. The first is to actually step in the water and stand above the buckets *before* any fish enter it. Pick the fish up as soon as they swim in. This could take hours, but if you're patient and still, the fish will not see your ankles as a predator and will take refuge in your buckets. You can then snatch them up immediately.

If, however, you don't have the patience or stability to stand in the water for extended periods of time, you just have to seek out a pond or a lake that is shallow near the bank but becomes deep just a few feet into the water. Set your buckets in the water, right next to the shore, and wait. Once fish swim into them, pick them up. Voilà! You've caught them using only buckets and without having to wade into the water.

3 Bottle Fishing

For this method and the one following it (funnel fishing), the only item you need is an empty bottle. It should be a 16-ounce bottle at minimum, and it's best if it held a carbonated drink, because those are built stronger than water bottles.

First, saw the top of the bottle off. The more difficulty you have doing this, the sturdier the bottle you've chosen. For bottle fishing, set the top aside. (Save it for funnel fishing.)

Fill the bottle with bait. For bottle fishing, it's actually best if you use artificial or already-dead bait, lest it swim away when you



(above) A bottle is the only item you will need for both bottle and funnel fishing. (top) For bucket fishing, setting two buckets in shallow water will attract a lot of fish.

set the bottle in the water. Place the bait at the bottom of the bottle. Tie fishing line to the bottle so that when you hold the fishing line in the air, the bottle hangs from the line with the opening facing up.

Take your bottle to your favorite fishing hole, set it in the water and wait for some fish to wander in. You must be very attentive when bottle fishing, because as soon as the fish realizes the bait is not real or it takes the dead worms, that fish is getting out of there. So immediately yank any fish out of the bottle.

BEST BAIT

What is the best bait to use? Each fisherman has their own "best" bait; that is, the bait that is guaranteed to catch a fish in five minutes. While there's no way to end this debate, here's a guide to some of the best bait for several different species of fish:

> **Catfish** love meat; the more, the better. Of course, don't throw New York strip steak to them, but the next best options include Alaskan night crawler worms, hot dogs, chicken livers and minnows.

> **Bass** are more attracted to bright colors, shiny objects and feathers. Artificial worms, jigs and spinner baits work best to catch these fish.

> **Trout** eat small fish and animals. Artificial and real minnows, crawfish and real salmon eggs will work best for attracting and catching trout.

Wait patiently with your hand above the water for a fish to swim within your grasp.

4 Funnel Fishing

Funnel fishing is, hands down, the most passive way to fish. The down side to this method is that the only fish you will catch by funnel fishing are sardines, guppies or fish of a similar size ... in other words: tiny.

To begin, fill your decapitated bottle just as you did when bottle fishing. This time, though, push the bait to the bottom/back of the bottle. It's also okay to use live bait, because it can't escape.

Push the cut-off top of the bottle, upside down, into the bottom of the bottle until it's completely secure. You now have a completed funnel—no fishing line required. Set the bottle in the water and wait for small fish to swim into the back of the bottle and eat the bait. They won't be able to escape. A few hours later, and you will probably have caught something.

5 Fishing by Hand

This method is the most fun, the most difficult and the most exhilarating.

Fishing by hand is often called "noodling," especially if you're fishing for catfish. Only use this method if you know exactly which fish, reptiles and amphibians are inhabiting your local pond. You don't want to reach under the water, only to be bitten by a snapping turtle or copperhead snake. However, if you know what you're up against and you have the patience, fishing by hand is one of the most rewarding fishing experiences you can have. To reiterate: Research which aquatic animals are living in your area or consult your local wildlife authority. Take precautions, and you'll be safe.

"Fish are naturally cavernous-seeking creatures, so setting two buckets in shallow water will actually attract a good deal of fish ..."



Next, if you can stand it, don't shower for a few days. If you smell more rugged and "natural," fish are more likely to be comfortable swimming near you. As for clothing, you also have a few choices. When we tried, we went without any clothes on other than our skivvies, but you can wear overalls and boots, as long as you don't venture any farther in than waist-deep water. Beyond that, if you fall into the water, it will be far more difficult to stand up.

There are two different options for how to fish by hand: Go to where the fish are, or wait for the fish to come to you.

Go to the fish: For "noodling" (which is when you shove your arm in a catfish hole in hopes that a catfish bites down on your arm), once a catfish has clamped down on your arm, pull your arm out of the hole, pull the catfish off your arm and throw it in your cooler.

Noodling is its very own practice, but the noodling theory can extend to other types of fish. Find a large rock sitting in shallow water, lift it up and a school of fish is likely to be found. Alternatively, locate a dug-out indentation in the bank; fish will be living there, as well.

If you do choose to go this route, you must be quick. As soon as you lift the rock or reach in the hole, the fish will run. Clamp down on the fish's body with your whole hand—and don't let go.

Wait for the fish to come to you: In this case, you will have to be even more patient than when you're bucket fishing. You can't just lift the bucket up and find fish within. You have to reach down into the water, grab a slippery fish and keep it in your hand. You probably won't be successful on your first few tries, but you'll eventually get the hang of it and (hopefully) catch a fish. You can also shape your hands into a "cup," place them underwater (maybe with some bait inside your cupped hands) and wait for a fish to swim right into the palms of your hands.

If you're looking for a challenge and want to feel even more fulfilled when you're sitting down for a fish dinner, try fishing in a way that's much closer to how the pioneers did it. And—best of luck! **MP**

· SELF-RELIANCE ·

Bread for the Outback

RATIONS BUILT TO LAST;
INGREDIENTS MADE FOR TRAVEL

By Thomas Tabor

Some of my best memories have been simple ones, such as enjoying a meal cooked over the open flames of a campfire built well away from what some people might refer to as “civilization.” Usually, that fare has been simple, consisting of only a little protein in the form of some kind of meat or beans, accompanied by some bread.

Bread is a staple mankind has relied upon for centuries and, to this day, it remains a valuable part of most people’s diet, whether in the backcountry or at home on the dinner table.



The Ups and Downs of Hardtack

In the early years of our country, bread frequently took the form of hardtack or bannock. Hardtack—or “sea biscuits,” as sailors called it—could survive for years or even decades as long as it was kept dry and free of insects. That made it a great product for long and difficult journeys, whether by sea or on the open prairies.

The problem was, as the name would seem to warn you, when properly baked, hardtack is nearly as hard as a piece of concrete. In most cases, to keep from doing bodily injury to the person’s pearly-whites (or, in the old days, possibly their dingy-yellows), hardtack was usually soaked first in coffee or some other liquid before attempting to eat it. When it comes to taste and palatability, I would rate hardtack no higher than a 1 or 2 on a scale of 1 to 10.

So, if you are looking for a last-ditch survival food capable of lasting a very long time, hardtack might be a good choice. However, when it comes to desirability and taste, a much better choice would be to make a batch of easily made bannock. While both hardtack and bannock share many of the same ingredients, they differ in how they are prepared, how they are cooked and how they are eaten—and certainly, how they taste.

The water should be added to the flour, followed by kneading—but only until all the lumps have disappeared. Too much kneading could result in a too-light, flaky and brittle hardtack, which is considered undesirable.

Roll the dough out to a thickness of around an inch and then stamp or cut it into whatever shape you prefer. Most often, hardtack took the form of squares about 3 or 4 inches across, but sometimes, it was cut into ovals or circle shapes.

After the dough has been cut to shape, perforations should be made by repeatedly sticking a fork or other sharp object into the surface. This helps prevent puffing and the formation of air pockets, which provide near-perfect places for insects to set up residence.

Once the biscuits have been formed, they should be placed on a greased cookie sheet and baked at 450 degrees (F) for 25 to 30 minutes. The finished product should be light yellow/tan in color and, when struck on a hard surface, the hardtack biscuits should actually “ring.” In addition, if placed in water, a good-quality biscuit will float to the surface. These characteristics assured the quality of the product and were sometimes even used in a commercial baker’s sales pitch to prospective buyers.

“Hardtack—or ‘sea biscuits,’ as sailors called it—could survive for years or even decades as long as it was kept dry and free of insects.”

Hardtack (Sea Biscuits) Basic Recipe

Ingredients

2 cups of whole-wheat flour
1 cup of water

Note: A little salt can be added in an effort to improve the flavor. Traditionally, a tablespoon of butter was sometimes added. However, adding butter, in particular, could result in shortening the life expectancy of the hardtack as a result of spoilage.



(from top) At the Fort Vancouver historic site in Vancouver, Washington, a baker rolls out a batch of hardtack dough in the traditional manner.

Once the perforations have been made in the surface of the hardtack dough to keep it from puffing and becoming too light, flaky and brittle, it is cut into squares 3 to 4 inches across.

After the hardtack biscuits have been formed, they are typically placed on a greased cookie sheet and baked at 450 degrees (F) for 25 to 30 minutes.

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A Bit of Bannock History

Throughout history, bannock has been known by many different names: bush bread, trail bread, grease bread or fried bread. The recipes were usually quite similar but sometimes included suet, lard, butter, buttermilk or baking powder.

Long before settlers came to the New World, Native Americans produced bread that was quite similar; however, in lieu of flour, ground



The author frequently mixes up a small batch of the dry ingredients for bannock to carry with him in his backpack. Whether he plans to be out for a few hours or even overnight, the ability to make a little bread makes good sense.

The dry ingredients to make bannock are few and simple: flour (either bleached or whole wheat), baking soda, salt and, of course, water.

Easy and Simply Bannock Recipe

Ingredients

1½ cups of flour (bleached or whole wheat)
½ tablespoon of baking soda
¼ teaspoon salt or to taste a small amount of water in order to form dough

Makes a single-serving biscuit about 3 to 4 inches in diameter

Note: Some recipes call for adding a bit of fat to the mix. That can take the form of bacon grease, lard, margarine or shortening. I do not like to add any type of fat to my bannock mix, simply because the ingredients will keep longer without it; and even without any form of added fat, your bannock will taste great.

nuts, seeds and even dried camas root were substituted. When the white man's flour first appeared on the scene, it was considered a luxury for a time, but during the fur trading, prospecting and settlement eras, it eventually became established as one of the key ingredients for bannock.

Flour was also a preferred thickener ingredient used for such dishes as rubbaboo and galettes. Rubbaboo was a porridge or stew made by the fur traders and the native Métis people of Canada. It traditionally contained peas and/or corn with bear or pig grease mixed in; and sometimes, pemmican and maple sugar were added. Galette was a similar type of unleavened bread as bannock and became a popular staple for voyagers and the fur traders of Canada's North West Company. Galette typically took the form of a crusty, flat round or a free-formed cake that was favored by the French Canadians.

Unlike hardtack, which is generally prepared and cooked in some form of an oven—sometimes months or even years prior to being eaten—the dry ingredients for bannock can be mixed just prior to being cooked or mixed and carried to the field in anticipation of cooking later on.



(above) Just prior to cooking the bannock, you can mix the necessary small amount of water directly into the zip-top bag that has the dry bannock ingredients.

(right) After adding the water to the dry bannock ingredients, kneading the dough is accomplished by working the bag's contents from outside the bag. The dough can then be squeezed out directly into the pan.



The finished bannock patty is both attractive and very tasty.

While the recipes sometimes vary slightly for bannock, there are really only four basic ingredients needed to make an excellent and fine-tasting batch: flour, baking soda, salt and water. For all practical purposes, flour has replaced nuts, seeds and tubers as the center of most recipes, and when baking soda appeared on the American scene in the mid-1800s, it, too, was added to bannock recipes. (Derived from soda ash, baking soda is produced by combining sodium chloride, ammonia and carbon dioxide in water.)

Bannock Benefits

One of the great things about bannock is its flexibility. The dry ingredients can be mixed together at anytime and stored for future use. To do this, they should be sealed and kept dry in order to avoid insect problems. I like to seal my ingredients in a zip-top-style plastic bag, which allows me to carry them in my coat pocket or backpack whenever I am in the outback. Then, when I am ready for a meal, all I have to do is pour a little water directly into the bag and knead the dough by working it from the outside of the container. Doing so is easy and helps limit any unnecessary mess.

After kneading, the bag can be opened from the corner to allow you to squeeze the ingredients directly into a frying pan. Another nice thing about bannock is the flexibility of being able to add a few wild berries—when available—to the dry ingredients (blackberries, gooseberries, huckleberries or others) to improve the flavor even more. And, if the occasion allows for it, a little cheese, jelly or jam can be brought along for even more of an enhancement. The jelly or jam is usually added after the cooking, but the cheese can be added either before or after cooking.

Obviously, if you are going to fry your bannock in a pan, you will need some form of grease to prevent the bread from sticking.

But there are other ways to make bannock. No pan and no grease? No problem. Bannock can be baked without an oven by simply wrapping the dough in a piece of tinfoil and placing it around the edge of your fire. An even simpler method is to cook it on a stick—much the way you would roast a hotdog or marshmallow.

Note: Make sure you know the tree species the stick is cut from in order to avoid any type of health hazards. The stick should be green, debarked and have forks about 4 to 6 inches long on one end.

To cook the bannock, make sure not to mix too much water in with the dry ingredients so the dough remains firm enough to adhere well to the forks as it is molded around them. After that, you simply hold the bannock above the campfire flames, rotating it occasionally until it is fully cooked.

I frequently carry a zip-top bag containing the dry ingredients for bannock whenever I plan to be afield for more than a few hours. In the dry form, the ingredients last very well over time. They are lightweight and easy to carry. And, as a survival item, bannock could, in some extreme instances, even mean the difference between surviving or not.

Even at home, bannock can be an easy-to-prepare dish that is quick to fix and will taste great. **MP**

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Prepping for Disaster

· SELF-RELIANCE ·

PREPARE FOR THE
UNEXPECTED AND
SAVE SOME MONEY
ON DAY-TO-DAY LIFE
IN THE PROCESS

By *Michael Veine*

**“Failure to prepare
is preparing to fail.”**



“PREPPING” MEANS A LOT OF DIFFERENT THINGS TO A LOT OF DIFFERENT PEOPLE. I view it as just being prepared for what life throws my way. I’m not a follower of the notion that “doomsday” is eminent. However, anybody who believes that disasters will never happen to them, whether natural or manmade, are just not grounded in reality.

Disasters can come in many forms: If you live along the coasts, hurricanes are a natural occurrence. Along the West Coast, earthquakes occur regularly, and big, damaging ones are certainly going to happen once in a while. States in the Mountain Time Zone seem to always battle wild fires during the summer. In the Great Lakes area, where I live, massive snowstorms shut things down for periods of time.

In fact, there is no place in this country where people are immune from some sort of disaster. Being prepared for those occurrences just makes good sense.

We also now live in a world in which a lot of extremist whackos hate Americans simply for the reason that we have different views than they do. Some of these zealots will go to any lengths to make life miserable for freedom-loving people like you and me and, if they could, they would prefer that we cease to exist entirely.

Many of these psychopaths are living in the United States right now, and a lot more of them are planning to come here in the future with the intent of terrorizing its citizens. Most will be stopped before they wreak havoc—but not all of them. In the future, we can expect them to temporarily bring down various infrastructures people depend upon: electricity (the power grid), water supplies, communications and more.

Preparing for these attacks and other normally occurring disruptions to our infrastructure is very wise, indeed. Read on for some tips about how you can prepare for the unexpected—and, in the process, save some money on day-to-day life.



(this page, clockwise from top left) Solar panels are a great way to charge batteries during an emergency. They can also save you money in day-to-day life. • A portable generator is very handy in the event of a power failure. • It's wise to keep a good supply of dry firewood stacked up and close to the house. • A cook stove and plenty of propane make cooking a snap during emergencies.

Generate Your Own Power

On December 23, 2014, parts of Michigan were hit by a catastrophic ice storm that caused power outages, leaving hundreds of thousands of people in the dark during Christmas, as well as through New Year. Right after the ice storm hit, subzero weather set in, along with heavy snows and blowing winds. Those deep-freeze conditions never let up all winter and, for the homes without electric power for over two weeks, there were some serious consequences.

Furnaces can't run without electricity, so without a secondary heat source, pipes freeze up and crack, causing millions of dollars in damage. Within a day or two of the storm, every generator within hundreds of miles was bought out. For those who were not prepared, there was plenty of suffering—both financially and emotionally.

“Stand-by generators that automatically kick on when the power goes out are the cat’s meow.”

My household, however, was just mildly inconvenienced during that disaster. I have generators to supply electrical energy and always keep a good supply of stabilized gasoline on hand. I also have a wood stove with plenty of dry firewood stocked up. I have a camping-style propane cook stove and several 20-pound tanks. With a freezer full of venison, fish and other goodies, along with plenty of canned and dry foods stocked up, my wife



and I ate as usual. We did have to empty our refrigerator, though, and moved those items into a big cooler in the garage. Running the generator during the periods of need was a small task, but other than that, life went on as normal.

Living in the country, power failures are a fairly common occurrence, so we have two small, portable generators for redundancy. One is an old Colman 1800-watt model that has never missed a beat in more than 20 years of service. A few years ago, I bought a Honda EU2000 (2,000 watt), and that little unit is quiet and very efficient; it runs for six hours on one gallon of gas. I always keep a good supply of stabilized gasoline on hand and several bottles of Stabile, too, for emergencies.

Stand-by generators that automatically kick on when the power goes out are the cat's meow. They generally run on natural gas or propane, but diesel models are also available.

Freeze Your Food

I am a commercial taxidermist, so I often have a lot of customers' specimens in my chest freezer in addition to a lot of valuable meat and fish. For that reason, I needed a dependable backup power source for the freezer. I have four deep-cycle batteries that I hook together in parallel connected to a Cobra 2,500-watt (5,000 peak) inverter. I have 200 watts of solar panels that will keep those batteries charged, but if the sun isn't shining enough, I charge the battery bank with the generator. The freezer will freeze down gallon jugs of water, which make great ice blocks. Those blocks are rotated into a big cooler to keep perishables cold with little muss or fuss.

For the past six years, I have lived off the grid (no electricity) back in the woods during the spring and summer months, near where I run fishing charters on Saginaw Bay. My electrical needs are met mostly by solar

(this page, clockwise from top left) The author keeps a chest freezer fully stocked—for emergencies, as well as to save money on food. If the power fails, the author moves items from the refrigerator to a big cooler, keeping it cold with ice jugs rotated from the freezer. The author can power his freezer and other appliances with a bank of deep-cycle batteries charged by solar panels. If you live in a cold-weather area, a backup, vent-free heater that does not require electricity for operation is a great investment.

power, but if I need to run my air conditioner, I do fire up a small generator.

There have been many occurrences when big storms ripped through the area, knocking out power for days at a time; this did not affect me at all. During times of disasters, people who have learned to live off the grid really reap the benefits of their lifestyle.

Stay Warm

I would highly recommend investing in a backup, vent-free heater if you live in cold-weather climates. These units do not require electricity and come with both natural gas and propane configurations. When I am away from home during cold-weather months, I set the vent-free heater at about 5 degrees below the furnace thermostat's setting. If there is a power failure or the furnace malfunctions, the vent-free unit will automatically kick on, keeping the house warm enough to prevent the pipes from freezing. If the power fails, that unit will also heat the house comfortably. These units can be bought for \$200 or \$300.



Stock Up

During an emergency, having plenty of potable water is absolutely critical. I keep 20 gallons on hand, combined with the 40 gallons in my water heater; I consider that minimal. I also have a 12-volt water filter that can supply more. I can collect rainwater or even pump it from our pond and filter it if needed. For washing up, a small pan of water with soap and a washcloth works great. Showering during power outages can be accomplished with minimal water use by warming up a gallon of water, putting it in a gallon jug and then dumping it over yourself in the shower.

Having plenty of food on hand is critical during an emergency. My wife and I shoot two or three deer each fall, and that venison lasts us a year in the freezer. We also stock up on other meats, almost always buying our meat in bulk. We also buy a lot of bulk chicken breasts for about half the going rate. Packaged properly, frozen meat will last for over a year in the deep freeze. It is great to have for emergencies and saves you money in the long run.

In addition, make sure to keep canned goods on hand. I am an avid gardener, so I freeze a lot of vegetables. I also buy lots of soups, other canned goods and stock up on lots of dry foods (flour, rice, noodles, beans and other long-lasting food items). I buy on sale a lot of prepackaged rice and noodle side dishes. They will store for years and cook up easily for both regular meals or in an emergency.



(top left) The author likes to keep a lot of prepackaged foods on hand. He buys them on sale to save some money. **(above)** Dry goods such as flour, sugar, pasta and rice keep great for years in plastic containers. **(top right)** Keeping plenty of canned goods on hand is wise in case of emergencies. **(bottom)** You can make hot water easily by placing a container of water out in the sun. Black containers work best because they soak up more rays.

Expert Words

Greg Sand is a decorated Vietnam veteran and a Marine. He survived for over a year in the jungles of Southeast Asia facing constant dangers, so he certainly knows a lot about being prepared for emergencies.

He told me that having drinkable water is always critical during an emergency. "In 'Nam, we used Halizon tablets to purify our water. With that stuff you could take water from a mud puddle and make it safe to drink. Halizon does make water taste nasty, so having some Kool-Aid or other drink flavoring really helps. Nowadays, however, I would rather use a water purification straw.

"Having plenty of food on hand is very important for any prepper. My wife and I keep lots of freeze-dried and dry foods that have shelf lives of 25 years. I like to store them in metal cans. Other essential items are lots of batteries, first aid items, prescription and

over-the-counter drugs, toiletries, coffee, lighters or fire starters, and books and manuals on survival and other useful skills.

"During an emergency, it is always best to stay at home," Sand continues. "If you are well prepared, however, keep that secret—because if others know that you have stuff, they might come around to try to take it away from you. You also need to know how many other



people you can help out. During times of emergency, unprepared neighbors, friends and family will come seeking help, and you need to know when to say 'no.'

"People you don't know might also come calling too—some with criminal intent—so you need to have a plan to deal with those lowlifes. It's a good idea to have a security system in place; both electronic surveillance and a good watchdog are great."

Sand adds, "During times of chaos, living in urban environments will be much more dangerous than rural areas. If staying at home is not possible, you should have a bugout bag ready to go at all times, along with plans—and backup plans—on where you will go depending on the situations. That bag should contain all the essential things you would need to survive. (Fully equipped bags are available at retailers such as Cheaper Than Dirt.)

"It is very important to have firearms to protect your family and to possibly provide food. If I had to pick one firearm to have during an emergency, it would be a Taurus Judge Revolver, which is capable of shooting either 410 shotgun shells or 45 Long Colt ammo. A good 12-gauge pump shotgun would be a close second.

"Failure to prepare is preparing to fail."

Protect Yourself

I'm an avid small- and big-game hunter, so I have lots of firearms and bows and arrows on hand. I like to keep a good stockpile of ammunition. When Barack Obama

"During an emergency, having plenty of potable water is absolutely critical."

(below, left) The author stockpiles ammunition, buying it on sale and in bulk to save money. Ammo will be especially valuable during big disasters. (below, right) Having some basic tools available often comes in handy during times of emergency.

was elected president, there was a mad rush on guns and ammo, creating shortages. Ammunition was especially hard to come by, and the prices soared. If just the threat of anti-gun legislation caused such a panic, imagine how hard obtaining guns and ammo would be in a real emergency.

I like to buy my ammo on sale and in bulk. Stored properly, ammo will last for decades, but I cycle through mine constantly, because I like to shoot. During the shortages, however, I shot a little less with my guns and more with my bows.

Don't Forget

Always have plenty flashlights and batteries available for emergencies. LED lights are awesome, because they last for many hours. I buy batteries in bulk. I go through a lot of batteries every year, so as with my ammo, I cycle through them before they get too old.

Done properly, prepping is a smart precautionary measure; it can also save you a lot of money. By buying necessary items in bulk that you need anyway, you can be prepared for emergencies and save some cash.

I personally like the feeling of being prepared for emergencies. The next time an ice storm, power failure or other calamity strikes, I'll go about my life with little disruption. Hopefully, you will, too. **MP**





· BUSHCRAFT ·

DIY Water Collection and Filtering

A SIMPLE AND AFFORDABLE STEP TOWARD SELF-SUSTAINABILITY
By *Charles Witosky*


Before water was sent straight to your home through pipes or you bought it in a tank or bottle, and even before you could buy a water purifier to immediately purify your water, you had to build a rain barrel and create a filtration and purification system in order to stay hydrated without going to a pond or well.

Here, you're going to learn how to collect and filter your own water. Using only a few tools, you can modify your home to become more sustainable and closer to how the pioneers survived.

There are a number of ways to filter and purify your own water—which we will get to later—but before you can even think about using or drinking the water, you have to create a means to contain it.

There are many tutorials about how to build a rain barrel, but the one we built was created to be the least expensive, most effective barrel you can build.

PHOTO BY THINKSTOCK



**“Every time you
use the rain barrel,
you’re that much
closer to living
like a pioneer ...”**



MATERIALS—You can use a barrel of any size, but a 32-gallon food-grade barrel should hold more than you can use at once. In addition, you'll need the barrel lid and window screening.

You will also need some form of screen to filter the basic debris that will try to get into your water (twigs, globs of dirt, bugs). We used a window screen and cut it up, but you can buy mesh by the roll, some of which will be sturdier and will also filter out more debris, depending on the quality of mesh you buy. Our barrel and window screen can be seen here in image to the left.

Next: Gather Your Tools

The only tools you will need to modify the barrel are a power drill, a 1-inch spade drill bit and a keyhole saw. Our keyhole saw came with two blades—one for cutting metal and one for cutting wood. When cutting the barrel, we used the metal saw, because it was much more serrated than the wood saw.

Now, to Work

Cut a hole: Trace a circle on top of the barrel lid. We traced ours around the indent in the lid, which was roughly a foot wide (Figure 1). Yours doesn't need to be any particular size—just about the size of the opening of the downspout on the side of your house.

Once you've traced your circle (Figure 2), start cutting. Saw as close to your outline as possible, but if you stray, it won't affect the final product in the slightest. It should come out looking like ours (Figure 3).

Attach the screen: Measure the hole and then trace a slightly larger one on the mesh. We just estimated by laying our window screen on top of the hole and marking it (Figure 4). We then cut it out and taped it straight onto the bottom side of our lid (Figure 5). This lasted for a few rains, but it eventually broke, so you might want to start off with a stronger alternative. Waterproof glue or construction staples might be better options.



TOOLS—All you need are a power drill, 1-inch spade drill bit and a keyhole saw with a blade meant to cut metal attached.

First Things First: Gather Your Materials

The first thing you will need is a barrel. While you can build your own from scratch, it would require much more effort and know-how than finding one you know will be reliable.

We used a 32-gallon food-grade barrel (these containers are most often used as trash cans). They are inexpensive and can be found at your local hardware store. If you're looking to use the water you collect frequently or you live in a very rainy area, we recommend using a 50-gallon barrel. The process for modifying it is the same, and you will have that much more water at your disposal. When you buy the barrel, make sure you also grab the lid. It comes with the barrel, and it's essential for assembling the final product.

“There are many tutorials about how to build a rain barrel, but the one we built was created to be the least expensive, most effective barrel you can build.”

**THE LID**

1. The outline for the hole should be at least 1 foot wide.
2. Cut as close to the outline as possible, but you don't need to be exact.
3. A completed hole
4. Our windowpane laying on the lid
5. The underside of our completed lid

**The Spout**

You have now completed the lid of your rain barrel. Next, on to creating the spout.

Gather your second set of materials. Remember: The only tool you will need for this task is the power drill with the 1-inch spade drill bit.

The materials: $\frac{3}{4}$ -inch hose bib; PVC tape; two 1-inch hose washers and two 1-inch-thin hex nuts; and waterproof epoxy.

Draw a dot on the side of your barrel near the bottom to create a hole for screwing in the spout. Put the hole close enough to the bottom of the barrel so that when you're taking water from the spout, not too much sits at the bottom of the barrel. On the other

hand, don't put it so close to the bottom that you can't reach under the spout to screw on a garden hose.

Once you've marked your spot, drill a hole. Screw through the barrel at a 90-degree angle.

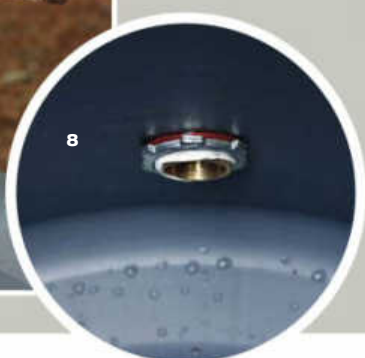
Wrap the PVC tape around the thread of the hose bib. Screw the hex nut all the way down to the base of the bib, followed by the washer. If either the nut or the washer cuts off any of the PVC tape, rewrap the thread. The tape's function is to create a waterproof seal—meaning that there's no such thing as too much PVC tape.

Next, screw the hose bib into the barrel. Make sure the washer is flush with the barrel. Adjust the hose bib until it's at your desired angle.



THE SPOUT

1. This is where we will drill the hole for the spout—just high enough to fit the spout but not so high that we won't be able to get most of the water out of the barrel.
2. Drill at a 90-degree angle.
3. A hose bib
4. PVC tape
5. Two washers and two thin hex nuts
6. Ready to be screwed into the barrel
7. Flush against the barrel
8. Waterproof



Finally, go inside the barrel and screw your washer onto the back end of the bib, followed by the hex nut. Make sure they fit as tightly as possible against the barrel.

Once you're sure all your washers and nuts are securely attached, coat the edges of the washers on each side of the barrel with waterproof epoxy. Allow the epoxy to dry for the amount of time indicated on the brand you are using. After the epoxy has set, you have a completed rain barrel.

If you want to stop here, you can. Just set your rain barrel out in an open area where it will collect a good deal of rain and wait for the water to come down. If you want a faster way of collecting water when it rains, read on to find out how to modify your downspout to direct water straight into the rain barrel.

Modify the Downspout

The tools: a hacksaw, flexible downspout extension, power drill and three screws of any size longer than ½ inch.

To begin, place the completed rain barrel next to the downspout attached to your house. Mark where your barrel comes up to on the downspout. Take a ruler, measure 1 foot up from that mark, and make another mark. That is where you will saw.

Using a hacksaw, saw where you made your second mark. This may take some work. There is no need to keep a straight line when cutting, so don't be concerned if the cut looks slanted. Once you've sawed all the way through, remove the downspout off your house below where you cut.

Next, slide your flexible downspout extension onto the bottom of the part of the downspout still attached to the house. It should rest there without assistance. You can now extend and modify the length and angle of the extension.

Once you're happy with the angle, use your drill and screws to connect the extension and the downspout, itself.

Place the barrel underneath the modified downspout. Adjust the extension so it's pointing directly at the hole in the top of the barrel. You now have a complete water collection system.

Add a Filtration System

To add a filtration system, you need only three materials: sand, pebbles and activated charcoal. Do not use charcoal that you use to grill, because it has many harmful chemical additives. You can buy activated charcoal from specialty stores in various quantities. We used roughly 50 pounds of sand and pebbles and 15 pounds of activated charcoal.

Another useful item is a large piece of canvas, cut into two large pieces, both roughly the circumference of the barrel.

THE DOWNSPOUT

1. The hacksaw worked perfectly to cut through the downspout.
2. Our downspout extension attached to our downspout
3. Screw the extension onto the downspout on three sides.
4. A completed barrel

**FILTRATION****River pebbles****Sand****Charcoal**

After the epoxy on the hose bib has completely dried, take off the lid of the barrel. Pour in the pebbles. We used river pebbles, which can be found at your local hardware store. (You can also collect them yourself.)

After you've poured in the layer of pebbles, lay down the first piece of canvas. This will help prevent any of the sand you're about to pour on top of the pebbles from getting mixed into the pebbles.

Pour the sand on top of the pebbles. Lay down the next piece of cloth. Lastly, pour in the charcoal. Together, these three materials fill up the barrel a little less than halfway.

Now, you have a water collection and filtration system fit for a pioneer. We recommend changing the charcoal every six months or so. If you're going to use it for drinking water, you should always boil it before doing so. Otherwise, use your barrel to water your plants, wash up or cook.

Every time you use the rain barrel, you're that much closer to living like a pioneer—and lowering your water bill while you're at it. **MP**

· SELF-RELIANCE ·

GINSENG

HOW TO GROW YOUR OWN AND MAKE BIG MONEY


CULTIVATING THIS TASTY CASH CROP IS EASIER THAN YOU THINK

By Jason Houser

American wild ginseng is the most sought-after ginseng, and many are willing to pay a lot of money for these roots. American wild ginseng grows naturally in the dense native forests of the central, eastern and northern United States.

The demand in Hong Kong and the rest of the Asian market is believed to be two to three times greater than the supply of American wild ginseng, yet the amount exported has been decreasing. As demand continues to outstrip supply, market mechanisms dictate that wild ginseng will only become more valuable.





“ ... much of the ginseng root currently being certified as ‘wild’ comes from woods-grown or woods-simulated cultivated plants.”

Rules of the Trade

To protect this resource, the federal government classified wild ginseng as an endangered species in 1987. Rules and regulations have been issued to monitor and, in some ways, restrict buying and selling wild ginseng, including:

- > Plants must be at least 5 years old before they may be harvested.
- > Plants with two or less leaves cannot be harvested.
- > Some states forbid the harvesting of plants with green, unripe seeds.
- > Most states require that when ginseng is dug out, new seeds be planted below 1 inch of topsoil and covered with leaves.
- > A ginseng license is required to harvest on public or private property.
- > Firsthand, cross-state dealers must get permission from the state wildlife commission and then obtain license and certification before conducting any business.

In fact, much of the ginseng root currently being certified as “wild” comes from woods-grown or woods-simulated cultivated plants. The certification of wild ginseng is largely based on self-reporting and the examination of limited samples by officials who might lack the training needed to distinguish wild-simulated from true wild root—especially when the two are mixed together.

No one really knows how much native wild ginseng remains, and because of this inaccuracy in counting how much is being harvested, it is difficult to form and enforce policies that effectively protect the resource while also allowing the harvest to continue, as has been admitted by the United States Fish and Wildlife Service:

“... The state conservation status ranking should reflect current conditions and understanding of that particular species. However, the amounts of wild-harvested ginseng reported annually by the state to DMA are not consistent with the numbers of plants and population sizes used for conservation rankings ... this is attributable to at least two factors. First, data are largely lacking on the occurrences of ginseng on private land. Second, much of what is exported as wild ginseng may in fact be some form of human-planted or (human)-grown ginseng, such as wild-simulated ...”



(above) Stratified ginseng seeds ready to be planted.

(top) A four-prong plant with ripe seeds ready to be planted. This is what all ginseng hunters look for.

Method Matters

Luckily, there is a way for ginseng diggers and farmers to continue to benefit from the ginseng business while not only protecting, but also enhancing, the wild resource. This success depends on planting wild ginseng in a completely natural woods environment. Natural woods-grown is the only ginseng that equates with wild ginseng in both medicinal and economic value. Natural woods-grown ginseng could someday replace the income now generated by digging up wild plants.

Natural woods-grown ginseng is the only kind that equals the wild in terms of value. The profit can be five to 10 times higher than from simply cultivating plants. Ten- to 15-year-old natural woods-grown might be worth from \$500 to \$600 a pound on the current market.

Natural woods-grown ginseng always comes from the seeds of wild ginseng or previous natural woods-grown ginseng. Alternatively, fresh root can be transplanted. The key point is to leave the seeds and roots to grow naturally on their own. The use of herbicides, pesticides or fertilizers dramatically lessens the resemblance of cultivated ginseng to wild ginseng and also decreases its medical value.

It is important for farmers, diggers, buyers and dealers to be able to differentiate natural woods-grown ginseng from woods-cultivated ginseng. Here are some useful guidelines:

- > Natural woods-grown ginseng has a relatively long neck and has eight to 12 dents on its body; its size is relatively small; it doesn't weigh as much.

“Ideal conditions for ginseng start with 90 percent natural shade on a forested hillside.”

- > At the same age (typically 8 to 12 years for harvest), natural woods-grown ginseng has similar size and weight as wild ginseng.
- > Natural woods-grown ginseng is also similar to wild ginseng in terms of color, smell, circular ridges on the root and the soft, spongy fracture when the root is broken in half.
- > Natural woods-grown has similar ginsenosides as same-age wild ginseng, which results in similar results in clinical testing.

Vast forests occur throughout American ginseng's natural range, and much of this forestland could be planted in natural woods-grown ginseng. If the economic benefits of natural woods-grown ginseng are recognized, there will be no shortage of good places to grow it, and the income generated could have a significantly positive effect on many rural Americans' standard of living.

How to Grow Your Own

Where to Plant: Ideal conditions for ginseng start with 90 percent natural shade on a forested hillside. The slope of the hill on average should be 8 to 40 degrees. An organic layer of soil should be from 6 to 8 inches deep. The soil should be black and loamy, well drained, with a pH of approximately 5. It is often best to plant natural woods-grown in areas where wild ginseng had grown previously. Ginseng thrives in a climate with 40 to 50 inches of annual precipitation. It requires several weeks of cold weather each winter to complete its annual growth cycle.

How to Plant: Clear the leaves from a small area. Do not turn or disturb the soil, because the top layer is the nutritious, organic part, and you do not want to move that to the bottom. Plant one or two seeds in every 3 to 5 square inches. Cover the seeds with leaves. There is no need to water the seeds or care for them in any way. Just let nature take care of them—the same as wild ginseng in the same location.

How to Transplant: Patches of young, natural woods-grown ginseng can be thinned and transplanted to maximize the growing area. Dig the fresh, natural woods-grown ginseng and plant it back in deep soil so that the top of the root neck is under ½ to 1 inch deep. Plant every 1 to 3 square feet. (The greater distance allows for future seeds to fall with room to grow.) Water the root and cover with leaves. Then, let it grow naturally.

Alternating between planting seeds and fresh roots is the best way to get the fastest growth. Five years after planting, a natural woods-grown ginseng plant may produce five to 10 seeds. These seeds fall naturally and have about a 33 percent chance of taking root. Each fall, the leaves cover these naturally sown seeds, and the growth speed is the fastest.

After nine or 10 years, the annual income from an acre of natural woods-grown ginseng could be as much as \$50,000—maybe more.

Storing Your Harvest

After harvest, the dug roots should be stored loosely in paper boxes or paper bags in a room with good ventilation. It is important not to store or ship ginseng in plastic bags: Plastic containers prevent ginseng from “breathing,” and this suffocation promotes mold.

Reaping What You Sow

Four- to 5-year-old cultivated ginseng has sold for as little as \$20 to \$30 a pound when the market demand was very low. But natural woods-grown ginseng, at 10 to 12 years of age, will sell from anywhere between \$400 and \$1,200 a pound—maybe more, depending on the demand from overseas.

Planting ginseng using the natural woods-grown method could not be simpler. No herbicides or pesticides are used, and the ginseng is left to grow in the wild. Little human intervention is needed, and the financial return is much higher than with cultivated ginseng. **MP**

A few roots getting ready to dry. Do not dry ginseng roots outside in the sun. Always dry inside.



Build a Better Smokehouse

HOW TO CONSTRUCT YOUR OWN AND THEN SMOKE MOUTH-WATERING MEATS

By Michael Pendley | Photography by Cheryl Pendley

Once upon a time, every home had a smokehouse out back. Before refrigeration, smoke curing was the only way to safely preserve meat. Besides making the meat last longer, the time it spent inside the smokehouse gave it an extremely pleasing flavor.

Today, while refrigerators and freezers make long-term meat storage easier, the flavor imparted by a stint in a smokehouse can't be copied through any other method. Commercially produced smoked meats such as ham and bacon are often pumped full of chemical cures and artificial smoke flavoring to speed the process and reduce costs.

How do you go about capturing that smoky goodness without consuming possibly harmful chemicals? Simple: Do what our forefathers did—build your own smokehouse.

Smokehouses don't have to be large or elaborate to smoke meat well. A footprint as small as 3 feet square is sufficient for the vast majority of people. Height can vary, but 6 to 9 feet is usually more than enough. While a smaller smokehouse will hold a surprising amount of ham, bacon or sausage, larger designs allow for a bit more control when lower temperatures are desired. If the area near the smoke entry point is too warm for the project at hand, a larger smokehouse allows you to move the meat farther away to a cooler area.





Wood siding and a tight-fitting door help prevent insects and pests from entering the smoking chamber and getting to the food inside. Use untreated wood to avoid dangerous fumes as the wood heats. Customize your smokehouse with details such as these overhangs that protect firewood, kindling and the firebox from the elements.

Build Your Base

A smokehouse base needs to be easy to clean—and nonflammable. Gravel works, but concrete is the best base material. Concrete is stable, allowing walls to be built directly on it with no fear of movement. It won't catch fire if an errant spark lands on it, and it is relatively easy to clean. A base pad of up to 5 feet square is easy for you to pour from bagged concrete mix.

Begin by spreading gravel to form the base for the concrete; then form the basic shape of the pad with 2x4 lumber. To make sure your form is square, measure from corner to corner diagonally across the form. When the two cross measurements match, the form is square.

Drive stakes into the ground on the outside of the form to hold the boards in place. Check for level. Once the form is in the proper position, simply follow the mixing and pouring directions on the back of the concrete bag. Finish the top of the concrete with a hand trowel before the concrete hardens.

Smokehouse Walls

After the base has hardened and cured for a few days, the next step is to form the bottom section of wall for your smokehouse. While many smokehouses are constructed completely of wood, block and stone can be used to form the bottom 2 feet of the smokehouse walls. This helps cut down on any fire risk should a spark make it into the smoking chamber. As the block or stone gets placed, be sure to leave a space for the fluepipe from the firebox to enter the smokehouse.

Wood is a popular wall material choice for home smokehouses, both for framing and for outer covering. Use untreated pine, cedar or poplar for framing purposes. *Pressure-treated lumber should be avoided to prevent any possible chemical contamination as the wood heats during the smoking process.* For the outer siding, pine, cedar, poplar or hardwood are all popular choices. Metal can also be used as an outer covering, but *avoid galvanized material, because it can emit toxic fumes when heated.*


Roof and Door

Roof material can be metal or framed lumber and wooden shingles. Temperatures at the top of a smokehouse should never get hot enough to cause fire concerns, regardless of the roof material used. Metal siding and wood shingles are both popular choices for smokehouse roofing. Don't be concerned with closing every crack and crevice along the top, because the smoke needs a way to escape. A small smokestack through the roof of the smoking chamber allows the smoke to exit and keeps the meat from becoming bitter from too much smoke contact.

Frame the door to be large enough to allow easy entry into the smoking chamber. And, a tight-fitting



(from top) Concrete and concrete blocks make an excellent foundation for a smokehouse. The material is strong, stable and fireproof if an errant spark enters the smoking chamber. Concrete is also easy to clean when the smokehouse floor needs it. • By connecting the firebox to the smoking chamber with a fluepipe, the smoke has time to cool before it enters the smokehouse. This allows for a long smoking time without building heat that would overcook the food as it smokes. A small, smoky fire will provide plenty of flavor without building heat. • Iron or carbon steel bars (never use galvanized steel around food products) allow meat to hang freely, letting the smoke coat every surface. By placing the bars at different heights and offset positions front to back, temperatures can be customized to each type of meat being smoked.



An old wood stove makes a handy firebox for your smokehouse. If a wood stove isn't available, a concrete or brick firebox can be built just off of the main smoking chamber.

“Today, while refrigerators and freezers make long-term meat storage easier, the flavor imparted by a stint in a smokehouse can’t be copied through any other method.”

seam around the door and a locking latch will go a long way in preventing pests from entering the smokehouse.

Hooking the Meat

To hold the meat inside the smokehouse, a series of racks or hooks should be located at various heights and depths of the interior. Having offset racks at different heights allows meat to be hung throughout the smokehouse, ensuring that they are in the most appropriate spot for the temperature and amount of smoke each piece requires. Hook and rack material should be stainless steel, cast iron or carbon steel. As with the metal siding, care should be taken to *avoid galvanized metal in any situation where food and heat are involved and noxious fumes from the hot galvanized metal might come into contact with edible products.*

While a simple smokehouse can be built by using a hotplate and an iron skillet full of wood chips placed directly under the hanging meat as the smoke source, most smokehouses have external fireboxes to prevent high temperatures in the smoking chamber.

Fireboxes can be constructed of concrete block or natural stone, with a metal door to allow additional firewood to be added. Old wood-burning stoves also make excellent smokehouse fireboxes and are easier to install than concrete block versions. Smokehouse fireboxes don't have to be large. The goal is a slow-burning, smoky fire more than heat, so even small, cabin-sized stoves are more than sufficient.

Connect the firebox to the smokehouse with a fireplace-style fluepipe. The greater the distance between the two, the more heat that dissipates before the smoke enters the firebox—an important factor if smoking in warmer temperatures. The fluepipe from the firebox should enter the smokehouse near the base of the structure, allowing the smoke to rise and surround the hanging meat.

Wood Choices for Smoking Meat

Once the smokehouse is complete, the choice of wood to use for smoking comes into play. Hickory is the traditional choice. Fruitwoods such as apple, pear or peach emit a sweeter smoke that pairs nicely with pork, bacon or ham. Oak is another good choice, particularly with beef. When smoking fish, most enjoy the milder smoke flavor emitted by alder or fruit woods.

Wood size is more or less dictated by the size of your firebox. Anything from logs down to chips can be burned with excellent results. Keep the air flow to the smokebox pinched down to keep the fire and heat level low. If the heat level gets too high, adding sawdust from a comparable smoking wood helps tamp the flame down and lower the temperature while still adding good smoke to the smoking chamber. Check with local firewood sellers or outdoors stores for wood sources.

3 SMOKEHOUSE RECIPES

... THE OLD-FASHIONED WAY

After your smokehouse is complete, what can you do with it? The list is long: Smoke cured pork belly for real bacon that makes the mass-produced stuff pale by comparison. Cure and smoke your own hams and sausage. Smoke your own salmon or other fish or make jerky the old-fashioned way. Here are three basic recipes to get you started.

During cool weather, a tight smokehouse also provides an insect- and animal-free area to hang hams as the cure permeates the meat.



Pork bellies after seven days in a cure. Rinse the bellies and then set them out to dry and form a pellicle before hanging them in the smokehouse. The sticky pellicle on the outer surface of the pork belly gives the smoke something to stick to.



Cured and smoked bacon. Curing your own bacon at home allows you to tailor the flavors to your personal tastes. Home-cured and -smoked bacon doesn't have the chemicals and preservatives often found in mass-produced cured meats.

Bacon

Start with a fresh pork belly from your butcher shop or Asian market. Cure the belly for seven to nine days in either a large zip-top bag or a plastic or glass tub. Weigh your belly carefully to get the correct amount of pink salt (try Instacure #1 or Prague powder, available online or at many butcher shops) per pound of meat. The following recipe will cure a 10-pound belly.

Ingredients:

One fresh pork belly, 10-pound range

For the cure mixture:

**2 level teaspoons Instacure #1 (pink salt)
1 cup kosher salt
1 cup dark brown sugar
2 tablespoons cracked black pepper
2 teaspoons red pepper flakes
1 cup sorghum molasses, honey or real maple syrup**

Mix all dry ingredients of the cure recipe. Place the meat in an extra-large zip-top bag or a plastic container. Coat the pork belly and sides well with the cure mixture. Most pork bellies come from the

market with skin on and can be smoked with the skin either attached or removed. Many people smoke with the skin on and then remove it before slicing. If your belly has the skin removed, rub the cure over both sides of the meat.

After applying the cure, pour the sorghum, honey or syrup over the belly. Cover the container and refrigerate. Flip the belly once a day for seven to nine days. Start testing at the end of seven days. Slice a small sliver of bacon from the side of the belly, rinse it well and fry it to check the flavor. If the flavor meets your approval, the curing time is finished. If it needs a bit more time, leave it in the cure for another day or two. Remember that the edges of the belly will always be saltier than the interior.

Once the belly has cured, remove it from the container and rinse it well under clean, running water. Place the belly on a metal drying rack overnight to allow a sticky pellicle to form on the outer surface.

Begin the smoking process by hanging the belly in the smoking chamber. Build a small fire and maintain an internal smokehouse temperature of 125 degrees (F) or lower for at least six hours or as long as 24 hours, depending on how much smoke you desire.

Smoked Sausage

Smoked breakfast sausage is a delicacy not often seen today. That is a shame, because it makes for an outstanding breakfast. Why not make and smoke your own?

Ingredients:

6 pounds pork butt, ground
2 tablespoons kosher salt
2 tablespoons dried sage
1 tablespoon brown sugar
½ tablespoon crushed red pepper flakes
2 teaspoons ground black pepper
1 teaspoon Instacure #1 dissolved in 1 cup cold water

Mix the dry seasoning ingredients together and then add it to the ground pork. Add the water/Instacure #1 mixture and mix into the meat thoroughly. Stuff the sausage mixture into cloth casings and secure them tightly with metal hog rings.

Hang the sausage in the smokehouse and smoke at 160 degrees (F) for three to four hours. Refrigerate the sausage after smoking and consume within two weeks or vacuum seal and freeze it for long-term storage.

Smoked Fish

Traditionally, it's best to use high-fat fish such as salmon, trout, tuna, mackerel and mullet. However, don't overlook fish such as gar and Asian carp, because they can be great smoked, too.

I like to smoke fish with the skin on. Smaller fish such as mullet and trout can be smoked whole; larger fish should be cut into sections.

Begin the process with a brine. Soak the fish in the brine for eight hours before transferring the fish to a wire rack to dry completely. Instead of the traditional hooks for hanging meat in a smokehouse, wire racks work better for smoking fish.

Ingredients:

8–10 pounds fish filets

For the brine:

8 cups water
2 cups soy sauce
1½ cups brown sugar
½ cup kosher salt
1½ tablespoons granulated garlic

Place fish in a large plastic tub. Mix brine ingredients and pour the brine over the fish, making sure the fish is completely covered. Cover container and refrigerate for eight hours or overnight. Smoke the fish at 150 degrees (F) for six to eight hours.

Consider These Smokehouse Delicacies

What other meats can benefit from time spent in a smokehouse? All sorts of things: country hams, guanciale (hog jowl bacon), Canadian bacon, jerky, pastrami, Polish sausage—you name it. Once you have your smokehouse up and running, there will be no shortage of meats you can smoke. **MP**



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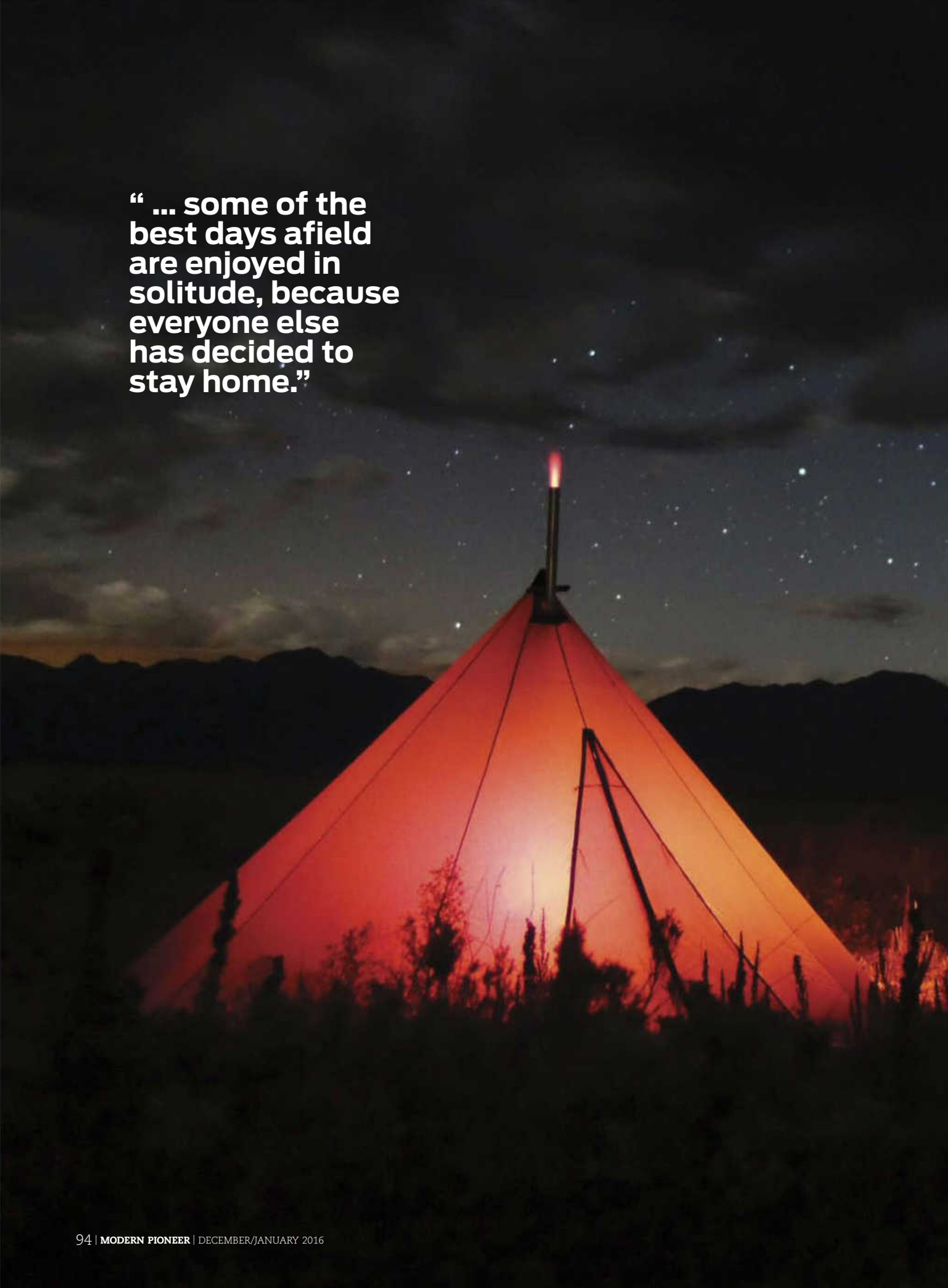
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**“ ... some of the
best days afield
are enjoyed in
solitude, because
everyone else
has decided to
stay home.”**



Stay Outside Longer

COUNTER WHATEVER
MOTHER NATURE
THROWS AT YOU DURING
THE WINTER MONTHS

By Brian Brown

It's that time of year again, when the warm, summer mornings have been replaced by brisk temperatures. Tree leaves will have changed colors and fallen to the ground, signaling that fall is here and that winter is not far behind. Before long, the first frost will be upon us; and, by the time many of you are reading this, the snow will have started to fly in some areas.

My family and I spend most of the year outside camping, fishing, hiking or simply enjoying what Mother Nature has to offer. However, this is the time of year I look forward to most, when hunting seasons are in full swing, and less-than-ideal weather conditions dissuade others from making the trip.

Admittedly, on some mornings, it might take more time to crawl out of that warm bed and step outside to see what Mother Nature has in store for you. However, some of the best days afield are enjoyed in solitude, because everyone else has decided to stay home.

Heading out with poor weather in the forecast takes some planning and creativity, but being a bit stubborn doesn't hurt either.

“... the old saying, ‘Cotton kills,’ is no truer than during the cold and wet months.”

Clothing

The first line of defense against the cold is your clothing, so making poor choices might not only put your trip afield at risk, it can also be dangerous. Utilizing a “system” composed of several layers allows you to tailor your clothing options to best fit the conditions and add or reduce layers, depending on your activity level. This system is much more versatile than a single heavy jacket that will be too warm and bulky in all but the coldest temperatures. Quality wool and/or synthetic clothing materials provide more warmth for the weight, wick moisture away from your body and dry faster than cotton. In fact, cotton is best left at home. The old saying, “Cotton kills,” is never truer than during the cold and wet months.

The layers: The foundation of your system should be a lighter-weight shirt and bottoms as a base layer against your skin. This layer will pull any perspiration away. The next layer should comprise a midweight shirt that not only adds warmth but can also be worn as an outer layer as the temperatures warm up during the day. Follow this with an insulation layer that is typically used during inactive times—such as sitting to glass or when temperatures plummet. It is also very handy to sleep in.

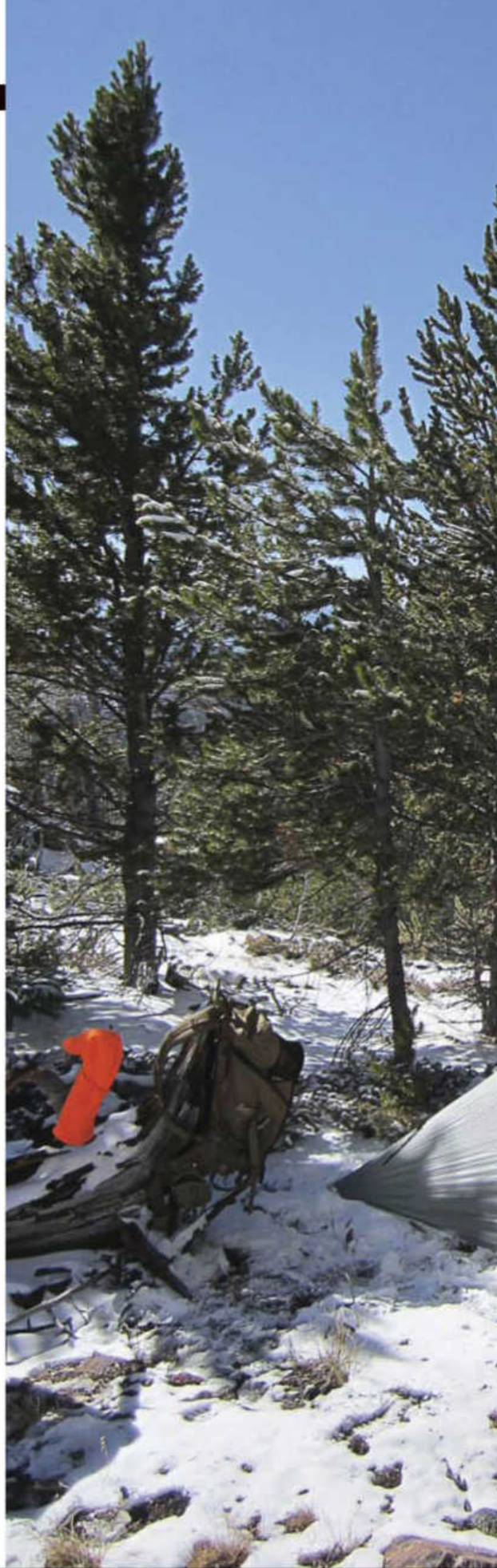
Synthetic insulation is arguably the better choice for clothing, because it will help keep you warm, even when wet. Contrast this with down insulation, which is typically more packable and warmer for the weight—but is rendered basically useless once wet.

Lastly, the outermost piece of the system should be a shell that will block the wind and shed water. Be cognizant of your activity level and add or remove layers to minimize perspiration and to keep from overheating.

Head, hands and feet: Keeping your head, hands and feet warm in cold weather is often more challenging, because once these parts get chilled, they will be the most difficult to warm back up. A good hat or “beanie,” combined with a neck gaiter, will help prevent the loss of too much heat from your head. At the

TIPS AND TRICKS

- > Build a small campfire to warm you during long glassing sessions or while field-dressing your animal to warm your hands and feet.
- > Chemical hand-warmers are a good way to keep hands and feet warm. Try tossing one in each boot overnight, and it will help dry them out, especially when combined with newspaper or paper towels.
- > A set of jumping jacks or even push-ups will get the blood flowing to your extremities and warm your core.
- > Just before bed, boil some water, pour it into your water bottle and then toss it in by your feet. This will help keep your feet warm for most of the night. Be careful to use a good bottle that seals well (e.g., Nalgene).
- > When using a wood-burning stove, surround the outside with rocks. They will absorb some heat as the stove burns and will help warm the shelter long after the fire goes out.



SUGGESTED CLOTHING SYSTEM

TOPS

- Base layer: lightweight merino long-sleeved shirt (e.g., First Lite Llano)
- Midlayer: midweight ¼-zip pullover (e.g., Sitka Traverse or First Lite Chama)
- Insulation layer: full-zip jacket with Primaloft insulation (e.g., Sitka Kelvin jacket). This style makes the jacket easy to put on and take off. Sometimes, you can use a vest (e.g., Kelvin Lite vest) with the same insulation by itself in the earlier season. Take both the jacket and vest on colder excursions. They pair well to cover most situations.
- Shell: waterproof rain jacket (e.g., Kuiu Chugach or Sitka Coldfront)

BOTTOMS

- Base layer: light to midweight merino or synthetic bottoms (e.g., Sitka Traverse)
- Midlayer: My pants are my midweight and are typically sufficiently warm when paired with my rain pants (e.g., Kuiu Attack, Sitka Mountain pants and First Lite Corrugate Guide pants).
- Insulation: I do not carry an insulation piece for a bottom clothing item, because I am typically moving, and my legs don't generally get too cold. In a pinch, I can climb into my sleeping bag to warm up.
- Shell: waterproof rain pant (e.g., Kuiu Chugach or Sitka Coldfront)

same time, simply removing your hat for just a few minutes will often mitigate enough heat to save you from removing layers.

A thin pair of liner gloves will keep the cold air away from your skin while exposed; paired with a thicker pair of insulated gloves, they should keep your hands dry and warm. Moving your fingers, opening and closing your hands repeatedly and tucking them into your pockets or under your arms will also ward off the chills. In very cold temperatures, thick mittens will do a much better job of keeping your hands warm, because your fingers will share body heat and contact—but at the cost of dexterity.

Keeping your feet warm can be tricky. An extra pair of wool socks and heavily insulated



Wearing every piece of clothing in my system allowed me to keep hunting when the weather took a turn for the worse. I was rewarded with this nice bull.

“Heading out with poor weather in the forecast takes some planning and creativity ... ”

boots might seem like good ideas, but they usually result in sweaty feet that will get cold much easier. Thick, insulated boots are a good choice when you will be stationary; but a single pair of medium-weight socks, teamed up with quality boots, is usually the best when you will be on the move. Gaiters act as barriers that keep snow and debris out of your boots and keep your pant legs dry; they also add some warmth to your feet by trapping some warm air and blocking out wind.

Food and Drink

Staying well fed and hydrated ensures you will have the energy to keep trudging along when the weather takes a turn for the worse. A good, warm meal not only warms you as you eat but also raises your metabolism, essentially warming you from the inside out for hours after the meal is consumed.

Staying hydrated in the cold can be difficult, because you might not notice how much water you are losing in perspiration. In addition, keeping your water from freezing can be a challenge.

Dehydration is just as much of a concern in the winter as it is in the summer. Your body needs water to function properly and maintain metabolism, so drink plenty—100 ounces per day is a good rule of thumb. During the colder months, consider switching to a water bottle in lieu of a water bladder, because it can take a lot of effort to keep the drinking tube and mouthpiece from freezing. If you prefer a water bladder, be sure to blow back into the drinking tube after each drink, forcing any extra water from the tube back into the bladder and delaying it from freezing up.

When possible, try to rehydrate with liquids that are the same temperature as your body



or warmer so your body does not spend any extra energy warming these liquids during digestion. Drinks such as tea, coffee, hot chocolate or even broth are great options to break up the monotony of plain water. Taking the time to stop for a warm meal and a hot drink can also be a huge morale boost, allowing you to push on.

Shelter and Sleep Systems

When planning to head out for days at a time, you will need to take a few precautions. Packing a few extra comforts will be worth the extra weight and hassle, because it will keep you in the field longer.

Having a way to heat your shelter, dry out any wet gear and take the nip out of the morning air is almost required at this time of year.

A lightweight and collapsible wood-burning stove is a great option if you will be carrying your gear on your back. There are also many small propane heaters available that are good options when camped closer to a road. A white gas or propane lantern will produce a surprising amount of heat, warming most shelters, as well. Take caution when using propane, because it will add condensation to your shelter and should not be left to burn all night because of the carbon monoxide risks.

Colder temperatures will expose any weak points in your sleep system, so it is best to have a good idea of your needs prior to heading out in the winter. Inflatable sleeping pads are basically mandatory during the colder months. Select a sleeping pad that is at least 2 or 3 inches thick with an R-value of 5 or higher. I use the same pad year-round; it allows me to use a lighter gear in the warmer months.



Also consider cutting some pine boughs to mat under your sleeping pad or add a closed-cell foam pad as a barrier between you and the cold ground. Choose a quality sleeping bag rated to at least a few degrees below the expected low temperature. However, remember that those ratings are usually based on survivability—not comfort—so, when in doubt, choose a bag with a lower rating.

Another good option is to pair your sleeping bag with an overbag or quilt, which will essentially provide you with the ability to have two separate bags that can be used at different times during the year but can be combined during colder months (as opposed to a single bag with a very low rating that will cook you during summer trips).

Packing a couple of comfort items on these trips, such as a cot, table or chair, will make for a more comfortable camp when the nights are typically longer than the days, thereby making for more enjoyable down times. This time of year, planning to spend nights afield will take some extra planning to counter the temperatures as they dip to their lowest point each night.

Proper planning and preparedness will allow you to not only survive when Mother Nature throws you a curve ball, but having the knowledge, experience and perseverance will allow you to thrive. Heading out when others decide to stay home can be more rewarding—aside from the solitude, better hunting conditions and spending more time afield. There is something so refreshing about watching a blanket of snow cover the landscape combined with the almost eerie quiet that accompanies the snow. **MP**

(above) A comfortable camp will keep you out longer. Plenty of firewood, combined with a quality sleeping system, will allow you to sleep better.
(middle) A hot drink warms you as you drink it and is also a good morale-booster, so make sure to pack your stove before leaving camp.

· SELF-RELIANCE ·

Raise Your Own Chicken

> HOW TO RAISE CHEAP MEAT—FROM CHICK TO FREEZER
By Mike Yancey

THAT'S RIGHT—YOU CAN RAISE HEALTHY, GOOD FOOD FOR YOUR FAMILY: FRESH POULTRY FOR LESS THAN \$4 EACH. SURE, THERE IS AN INITIAL INVESTMENT FOR FEEDERS, WATERERS AND HOUSING FOR YOUR POULTRY, BUT ONCE YOU HAVE ALL THAT, THE COST PER BIRD WILL BE AROUND THE \$4 MARK. THE COST OF THE POULTRY AND FEED AVAILABLE IN YOUR AREA AND THE AMOUNT YOU ARE ABLE TO FREE-RANGE YOUR BIRDS WILL HAVE ALSO AN IMPACT ON YOUR TOTAL COST.

This article will give you an idea—and the courage—to do this on your own. It is a very healthy way of providing food for your family. The fresh meat, raised without medication and in a healthier, humane way, makes this a winning situation.

In addition, there are bonuses of raising your own chickens. One of them is the all-natural fertilizer your backyard flock will provide. This organic manure comprises almost all the fertilizer we use on our vegetable garden and is a huge savings when considering the cost of commercial chemical fertilizer.

I am going to give you an overview of how we raise the chickens on our farm; you can adapt our process to one that will best suit your situation and takes into consideration the area in which you will be raising your flock.





A



B



C



D

“From the time we get our baby chicks and almost until butchering, we keep fresh feed and water in front of them at all times and don’t change from that feed until the last couple of weeks before harvest.”

Starting From Chicks

Our backyard poultry operation is based at our 40-acre family farm, where we are able to have as many chickens as we want. We also free-range them as much as we want—or as much as the weather will allow. We have all the housing and pens needed to contain and protect our poultry from predators.

When the chicks are still just a few weeks old, you will have to provide a dry, draft-free area and a reliable source of heat. In the early stages of their life, we like to keep the chicks in a very small area that is heated with several poultry heat lamps. Unless you have just a few chicks, you will need more than one lamp, because with only one, the birds will tend to bunch up in the area of light and start trampling the ones on the bottom, eventually



E



F



G



H

killing them in the process. An area made in a circle will also help, because the chicks also tend to bunch up in corners.

As the little chickens begin to grow feathers on their wings, they are able to get by with a little less heat. At this point, make their area a little larger and even allow them to go outside if the weather permits. After all, there is no substitute for fresh air and a little sunshine to keep them growing and healthy.

Once our birds are fully feathered and able to withstand more-normal weather conditions on their own, we allow them to free-range a few hours each day. We always provide a way for them to have constant access to fresh water and feed in their pen. This will keep them “coming back to roost,” so to speak.

Also, be aware that predators are always a very real concern when free-ranging your poultry. Hawks, stray dogs and coyotes are just a few of the animals that would love to help thin your flock.

From the time we get our baby chicks and almost until butchering, we keep fresh feed and water in front of them at all times and don't change from that feed until the last couple of weeks before harvest. We then switch to a corn-based diet, rather than the chick starter they have been on.

Why Free-Range?

There are advantages of free-ranging: Your chickens are more healthy and happy, and free-ranging helps reduce the amount of feed you have to provide for them. If you have an

A. Preparing to make the cut to remove intestines.

B. Removing the intestines. **C.** Removing the small feathers.

D. Once plucked, remove the legs and internal organs. **E.** Cut the gizzard open.

F. Remove the feed and material, as well as the liner inside the gizzard. **G.** A finished gizzard.

H. The gall attached to the liver. It must be removed carefully.



average-type area for your chickens to free-range in, they will find an endless supply of insects and fresh, green grass.

The disadvantage is the possibility of loss due to predators. Additionally, free-range chickens don't grow quite as fast as ones that are force-fed 24/7. But the taste and healthiness of free-range chickens will more than offset the difference.

Once our chickens are allowed to free-range, we reduce the lights and let them sleep at night in a more natural condition—if there is an adequate heat source. The chicks' body temperature needs to be around 99 degrees for the first two weeks of life, but that temperature reduces as they grow. They will self-regulate the heat if you provide enough heat sources—as well as room to move away from that source as needed.

One thing to keep in mind is the danger of a heat source causing the bedding material to catch fire. Be sure the heat provided is secure, as well as far enough away from any bedding material and the walls.

Cost Breakdown

The sight of free-range chickens on a farm is almost a thing of the past. Nevertheless, it is one that will warm your heart once you give it a try. The breakdown on cost for the birds we raised and documented for this article is as follows:

We purchased our meat chickens via a 100-bird deal for \$60. The feed we used cost us \$17.95 for the 50-pound bag of chick starter



and \$8 per 50-pound bag of corn chops we fed the last two weeks before butchering.

There was no way to measure the amount of “free” food the birds received while on free range—every time we looked, one of them had a worm, bug or small snake in its mouth and was running from the others, which were trying to snatch its “prize.”

The original 100 birds were reduced by five, which died in their first few days of life. Four more were pullets that we did not kill but kept instead to raise to provide more laying hens in our normal flock. We kept two others as replacement roosters, and we sold one as a breeder to a neighbor. The poultry supply dealer from which we bought the original flock gave us a few extra birds. As a result, after the losses and the chickens we kept, we ended up with around 90 birds that we processed for the freezer.

We used a total of 800 pounds of chick starter at an average cost of about \$18 a bag for a total of \$288. We also fed 150 pounds of corn chops at a cost of \$24. Our total cost to feed these 100 birds, as well as the 25 laying pullets we fed at the same time as these meat birds and the cost of the 100 birds, was \$372. That ended up at a cost of \$4.12 for 90 processed meat birds and those 25 pullets that were eating the same feed at the same time.

In theory, you could reduce the final cost by 25 percent for a total expense of \$3.09 per bird. We raised our birds to 16 weeks, with an average live weight of 4 pounds and an average processed weight of 3 pounds. You might choose to raise your chickens a little longer and to a bigger weight for very little additional feed cost.

Processing Your Meat

Processing was a family affair, with my nephews helping out in the butchering and my sister and brother-in-law (with whom we split the cost and meat) also providing some helping hands. We chose to get everything done in one morning.



(top left) Our little chicken-plucking helpers—the Burton brothers.

(top right) Chickens on free range. (bottom) Iron kettle full of hot water used to scald the chickens, allowing the feathers to be removed. (opposite, top) Chickens packed in ice. (opposite, bottom) The finished product.

“One of the added bonuses is the all-natural fertilizer provided by your backyard flock.”

However, rather than planning for a total one-day kill, another option is to spread out the processing over a few weeks. Killing around 25 chickens at a time might make the job of processing the birds less daunting.

You will need a way to heat enough hot water for scalding the chickens; the hot water makes it easier to pluck the feathers from the carcasses. We used an old, cast iron kettle for this purpose, with hickory wood as a heat source.

The trick here is to make sure the water is hot enough to make the feathers pull out without cooking the skin. I can't tell you the exact temperature of the water, but my father always told me to keep it hot enough to run your index finger through the water three times. If you can run your finger through the water more than that, the water is not hot enough; alternatively, if you can't run your finger through the water even once or twice, it's too hot. Use common sense here: Be careful!

Once the water is the right temperature, hold the dead bird by the legs and completely submerge it in the hot water, sloshing and pulling it in and out of the water about three times to get all the feathers wet and hot. Again, be careful not to burn yourself or heat the chicken's skin too much. If you get it too hot, it will yellow and tear; not hot enough, and the feathers won't pull out. It won't take you long to figure it out. The true test is being able to pull out the wing feathers.

Picking Out the Pieces

Here is where help comes in handy: We usually kill five chickens at a time and then begin the plucking process. Once a bird is plucked, the dressing is done by removing the legs and internal organs (being careful not to puncture the intestines). Once the chicken is gutted, we save the heart, liver and gizzard. The heart is ready to go in the freezer once cleaned, but the liver must have the gall removed.

Make sure to not puncture the gall. If you do, throw it away and clean your table thoroughly—because everything that comes in contact with it will be bitter. Finally, the gizzard must be split open and the contents and inner lining removed. We like these items, but if you don't, simply throw them away and move on to cleaning the whole chicken carcass.



Once a bird is plucked and drawn, we like to allow the carcass to air dry for a few minutes, which allows its body heat to dissipate. It also lets you singe any tiny, hair-like feathers remaining on the carcass. I do this with the feet still on the carcass: With a pair of gloves on, I grab the chicken, take the bird by the legs and quickly move it over the fire to singe off the tiny feathers. Then, I remove the feet from the carcass and pack it in ice until it is packaged for long-term storage.

Keep it clean, and keep it cold are the rules here. Once you're done with all the butchering and cleaning, you are ready to package the chicken for final storage in your freezer—and enjoy the fruits of your labor. **MP**

· SHOOTING ·

Gunsmithing

THIS CRAFT REQUIRES SKILL, PRECISION AND LOTS OF KNOW-HOW



Custom touches such as an engraved and polished bolt are available options when having a gun built by a gunsmith.

Today

By Michael Pendley

FROM THE EARLIEST EXPLORERS TO OUR SHORES, THROUGHOUT COLONIAL AMERICA AND THE NATION'S EXPANSION WEST, A WORKING FIREARM MEANT THE DIFFERENCE BETWEEN LIFE AND DEATH, WHETHER AS PROTECTION OR A MEANS TO A FULL BELLY. As a result, gunsmiths were considered important members of a community.

The art of gunsmithing was often passed down from father to son over multiple generations. Early American smiths not only had to repair firearms manufactured elsewhere, they were also frequently called upon to build guns from scratch.

Colt, Remington, Henry and Browning were all gunsmiths by trade who ended up revolutionizing the firearms industry in America. The companies these men founded exist to this day.

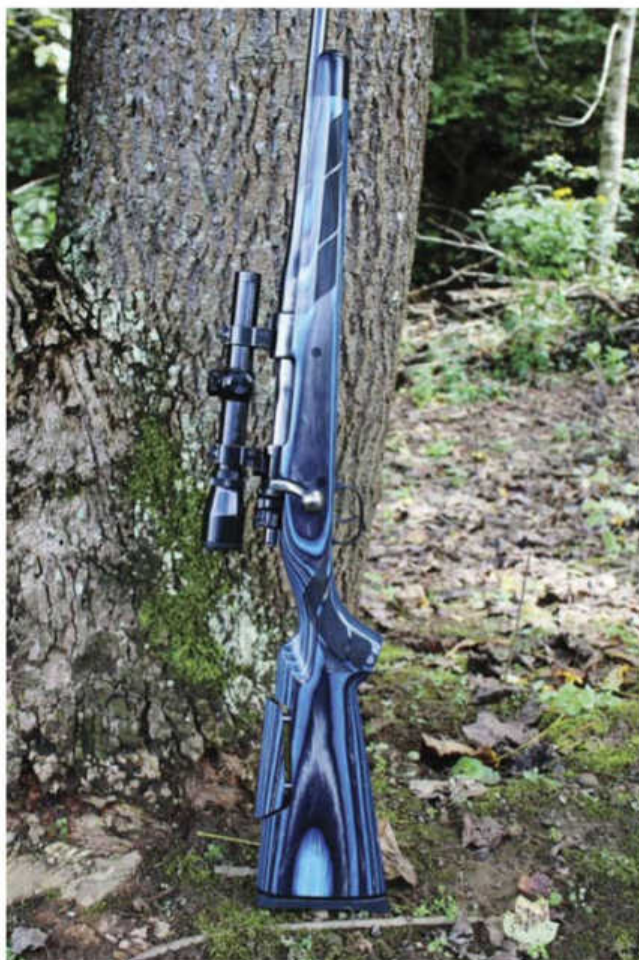
Guns are now involved far less often in matters of life and death. Even so, today's gunsmiths are faced with a new set of issues as they continue the tradition of repairing, restoring and even building guns.



“From the earliest explorers to our shores, throughout colonial America and the nation’s expansion west, a working firearm meant the difference between life and death ... ”



(left) The wood in this highly grained stock was handpicked by the rifle builder. Wood grain such as this is rarely available on production firearms. An experienced gunsmith can help choose raw wood blanks that will turn out like this once the finish is applied. **(right)** The sky is the limit when it comes to picking accessories for a custom firearm. This laminated wood stock in bright blue was installed on a youth rifle for a young shooter.



PHOTOS BY ANDREW MAXWELL

The Past

A popular area of gunsmithing today is the restoration of classic sporting or military firearms. Andrew Maxwell, owner of Redbeard's Gun Restoration, specializes in repairing and customizing old military Mausers into works of sporting art.

"The thing I love the most about working on older guns is the obvious quality of older stuff versus what is manufactured today," says Maxwell. "What I enjoy most is taking a beat-up, rusted-out, military-style weapon such as a Mauser—a firearm designed as an instrument of war—and turning it into a beautiful and stylish piece of art. Even with 100-plus years of wear, these guns have tighter tolerances and better fits than guns straight off the production line today."

A typical restoration of a military-style Mauser might include a new barrel, turning and fitting the straight, military-style bolt to fit the modern sporting rifle style, re-bluing or coating the barrel and action to a smooth, rust-free finish, and restocking.

Maxwell prefers wood stocks and often sends them out for custom checkering and engraving. "To me, plastic and fiberglass stocks just have no soul. Give me a pretty wood grain every time," he says.

When asked what gun owners need to do to keep their rifles in prime condition, Maxwell recommends a good gun wax rather than oil. "A good coating of Renaissance Gun Wax will protect the wood and metal of your firearm without gumming up the internal parts or softening wood stocks like a heavy application of oil."

He also recommends using a product such as J-B Bore Paste for cleaning badly fouled rifling. "People get these old rifles with decades of bore fouling and try to clean them with regular bore cleaner. I can come along behind them with J-B Bore Paste and pull all sorts of leftover black nastiness out of the rifling. J-B is one product I rely on to get an old barrel really clean," says Maxwell.

He also recommends buying a set of quality, hollow-ground gunsmithing screwdrivers.



PHOTOS COURTESY OF MIKE ANTHONY; PHOTO: ANDREW MAXWELL

"I can't tell you how much it bothers me to see a firearm come in with bugged-up screw heads and metal from people who tried to use a screwdriver that doesn't fit the screw. A good set of gunsmithing screwdrivers will have something to fit every screw on a gun exactly, limiting the possibility of a slip marring the finish," he says.

The Future

While most gunsmiths see the bulk of their time taken up by older firearms, there is a segment of the industry that deals with the testing and design of new firearms.

Mike Anthony is a former tech in the research-and-development division for a major U.S. gun manufacturer. "On any given day, you might walk through a facility (with proper credentials and personal protective gear, of course) and pass by a team of folks firing thousands and thousands of rounds through a set of firearms in fixtures in an attempt to put a lifetime of use on them in mere days or weeks. Round the corner, and you might see a team gathered outside a secure room, getting ready to remotely fire a gun loaded with specifically calibrated, ultra-high pressure rounds in order to see if the firearm will fail in such a way that it's as safe as possible for the user should something be allowed to happen, such as an overcharged hand load or obstructed bore."

Mike goes on to add, "In the next room, some poor soul is mixing a huge vat of mud (which is also a controlled mixture and viscosity) that will soon be used to dunk and impregnate another firearm in order to check its function in the worst possible

conditions. The same is done with dust/debris and extreme heat/cold, and some are even misted with water and frozen repeatedly until you can barely tell that the chunk of ice houses a firearm before it's pulled, broken loose and fired.

"You just never know what you'll see, and while some things may seem trivial, something as simple as a drop test (yes, literally dropping a firearm in a variety of positions with a primed case only chambered to check for accidental firing) is imperative to ensure the product received by the end user is as safe, durable and functionally superb as it can be made. But not everything makes the cut—nor should it."



(above) Firearm tech Mike Anthony spends time on the test range as part of his job. Each new firearm design gets tested in many different ways in order to ensure the firearms are ready to be introduced to the public.

(top) Even though he spends all day working with and testing firearms, Anthony still enjoys a bit of range time now and again.

When asked what trends he sees in firearm manufacturing today, Mike says the AR-15 (Armalite Rifle) movement has bled over into other firearm types. "Making things more modular in today's firearm market seems to be the product of a few things. One of those is the rise in popularity of the AR-15 and all its various forms by other makers today, as well as other rifles people want to customize and 'make their own.' The ability to simply pop off an upper receiver assembly by pushing out two pins, replace it with another with a different chambering or accessories previously attached allows for multiple uses and capabilities within the same serialized lower receiver assembly. [This] basically equates to having a single gun with endless possibilities and myriad ways to configure it to one's liking. The options are very near endless.

"This has also led to things like quick-change barrels and other components that



One of the newest trends in modern firearms is the modular system that allows different uppers to be attached to the same lower, giving the owner optional calibers at less cost than a full firearm. Here, uppers in .30 Remington AR, 450 Bushmaster and 5.56x45 sit over a lower that will attach to all of them.

PHOTOS COURTESY OF MIKE ANTHONY; PHOTO: ANDREW MAXWELL

This engraved custom floor plate was added at the request of the owner. Touches such as this separate a hand-built rifle from production stock.

allow the user to change things up without necessarily having to take the firearm to a gunsmith to make those changes and swap it back just as easily, if desired. This has military applications, as well, since things like worn barrels can be swapped fairly easily in the field without much down time or the need for an armorer to do the work when timeliness can be a real asset.

"While the idea is certainly to make things easier for the user, it can present real challenges for a manufacturer. For example, making a part easy and quick to change can sometimes make it difficult to keep it solidly in place over hundreds of rounds of contained

explosions and the stresses they induce throughout the platform. The simple fact is that given enough vibration, mechanical couplings will work loose over time and need to be tightened to spec at regular intervals. Eventually, wear occurs, and things loosen at a faster rate down the road," Mike explained.

Current-Day Full-time Gunsmith

The third segment of modern-day gunsmithing is just that—a full-time smith working on an ever-changing array of firearms. Joe Ramsey, owner of Appalachian Custom Guns Inc. in Pikeville, Kentucky, is just such a smith. Since attending gunsmith school at the Colorado School of Trades some 25 years ago, he has been working on firearms on a full-time basis.

On any given day, Joe might see a currently manufactured shotgun with a broken firing pin, a 150-year-old Sharps rifle in need of a full restoration, and a blackpowder rifle with a stuck lead ball. A full-time smith must possess the knowledge and ability to work on all the problems and the myriad others that pass through his/her door on a regular basis.

"I think my favorite thing to work on is an old rifle or handgun that someone brings in and tells me no longer functions. I enjoy



PHOTO BY ANDREW MAXWELL

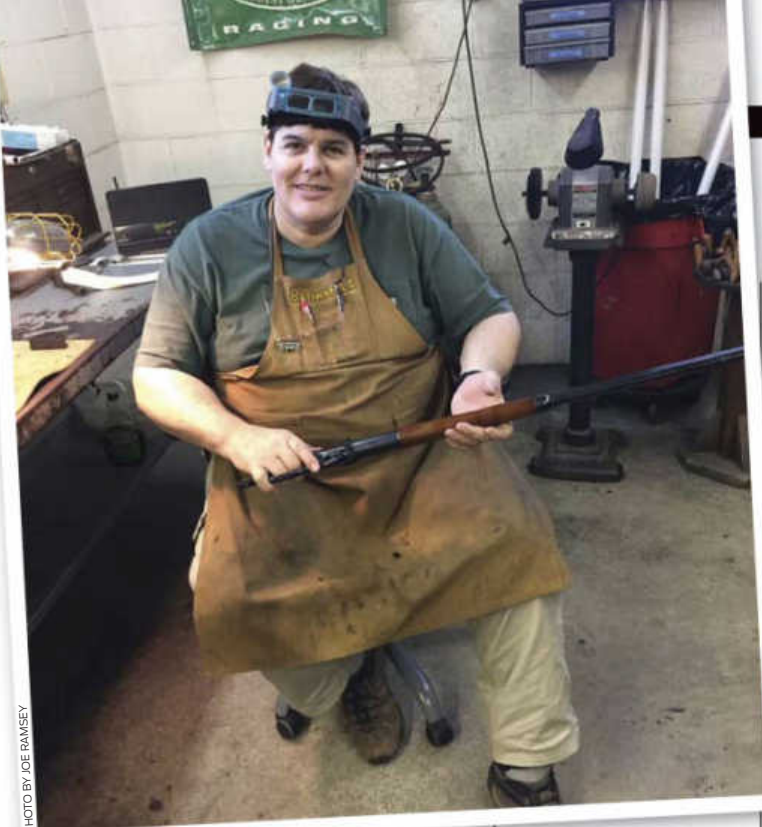


PHOTO BY JOE RAMSEY

troubleshooting the problems and get quite a bit of satisfaction from figuring out what the problem is," Joe says. "More often than not, on old guns in particular, the problem is the buildup of dirt and gunk over the years, along with the lack of proper cleaning. People use too much oil—and the wrong kind of oil—on their guns. They think they are doing the right thing, and the gun does function better in the short term, but that extra oil and grease trap dirt, dust and powder residue. Eventually, it builds up to the point that the firearm ceases to function.

"I think the gun-owning public as a whole used to be more knowledgeable about the firearms they owned. People didn't typically own a safe full of guns, so they spent more time taking care of the guns they had. When I teach concealed-carry classes these days, I spend a great deal of time with each student, making sure they know how to properly break down and clean their handguns, where to put oil, where to put grease and how much of each to use. If there were one thing I wish more people today knew about firearms, it would be how to properly clean them."

When asked about the main differences he sees between older and currently manufactured firearms, Joe replied, "Today's firearms are built to much looser tolerances than the firearms of yesteryear. Take Glocks, for instance: Their barrels are bored to two thousandths over bore. This allows the firearm to function, even with a buildup of dirt and crud. It's one of the things that make them so popular with military and police units.

"The older guns had hand-fitted parts. In fact, that is one of the first things they taught in gunsmithing school. They handed

(above) Joe Ramsey installs a new mainspring and hammer stirrup on a Winchester Model 1886 chambered in 45-90.

(below) Joe uses a barrel straightener to take the bend out of a barrel. It is important that a gunsmith own or have access to custom tools in order to complete all the jobs that pass through the door.

us a block of metal, a file and a blueprint and told us to make the shape shown on the blueprint—within $\frac{1}{1000}$ inch.

"Today's guns are made up of machine stamped parts. Some of these parts might be slightly off size or maybe they didn't get case-hardened the correct amount. And since there isn't a knowledgeable person sitting there, fitting the part to the firearm, these bad parts occasionally make it through production. There are a few modern firearms out there today that, when I see them walk through the door, I pretty much know what piece is broken without even looking at them. It is the same part on every gun of a particular run."

Joe went on to say he thought new guns were made with the expectation that the user might only get seven to eight years of moderate use out of them before parts would start to fail. "Where there used to be quality steel, now, there is stamped metal or even plastic. These materials just don't hold up to wear and tear like older firearms."

From simple tasks such as a thorough cleaning through building a completely custom firearm tailored to fit the individual owner, the modern gunsmith gets to see a never-ending array of firearms that need their attention.

Joe says, "There always seems to be something new on the bench. Every time I start to think I have seen it all, something new comes through the door!" **MP**



PHOTO BY JOE RAMSEY

Primitive Bowhunting

TRUE TRADITIONAL ARCHERY AND HUNTING—WITH THE GEAR *YOU* MAKE

By Darryl Quidort

LATELY, THERE HAS BEEN A SMALL MOVEMENT OF ARCHERS AND BOWHUNTERS GOING BACK TO THE USE OF SELF-WOOD BOWS—THAT IS, BOWS CARVED FROM A SINGLE PIECE OF WOOD WITHOUT ANY BACKINGS, LAMINATIONS OR FIBER-GLASS USED TO STRENGTHEN THEM. For hundreds, even thousands, of years, food was gathered, families were protected and wars were fought with simple, but effective, wooden bows. These were the true traditional bows.

How can a modern bowhunter not be interested in these roots? I certainly am, and I wanted to experience hunting with a self-bow for myself.



Self-Bows and Osage

Back when it was “take meat or die” with a simple wooden bow, Native Americans learned to make serviceable bows from locally available wood. Perhaps the premier bow wood was Osage, named after the Osage Indians who lived in the natural range of the Osage orange tree in parts of Oklahoma, Arkansas and Texas. Osage bow staves were coveted trade items among Native-American tribes for hundreds of years before Europeans appeared on this continent.

Today, Osage grows throughout the Midwest and other places where these thorny, brushy trees were planted by settlers for hedges and livestock fences. Although it is hard, crooked wood, Osage is still the wood of choice for many self-bow bowyers.

Michigan self-bow guru, Gary S. Davis, uses Osage almost exclusively for his bows. He notes, “Osage is a little more trouble than other woods but worth the effort.”

Making wooden bows is a learning experience that never seems to end. Since all woods have natural variances, no two bow staves are alike. Therefore, it is impossible to make a self-bow to any preconceived measurements. You have to let the wood dictate how the bow is made.

A wooden bow must be crafted with patience and care. As Gary guided me through the steps of making my own self-bow, I learned about growth rings, grain, steaming, straightening, tillering and finishing a bow.

Making and shooting a self-bow add a whole new dimension to archery. The first arrow sent arcing away from your own handmade bow is a wonderful sight. I was pleased to find that my Osage bow shot arrow after arrow with quiet, powerful authority. It felt different than my fiberglass-laminated bows, but the “bump and hum” I felt when shooting my new bow soon became most pleasurable.



The author's handmade primitive hunting gear used on his successful turkey hunt: Osage self-bow, wooden arrows and turkey box call

“Making, shooting and hunting with your own handmade primitive bow bring a satisfaction that can’t be realized any other way.”

Putting Homemade Gear Into Action

Michigan's spring turkey-hunting season was only two weeks away when I put the last coat of finish on my Osage self-bow. The Tru-Oil finish brought the yellow Osage wood to a deep luster and waterproofed the rattlesnake skins I had added to the back of the bow for camouflage. Lacing on a black leather grip was the finishing touch. I liked the look of my new stick bow.

My arrows were self-nocked cedar shafts fletched with natural feathers from the wings of turkeys and wild geese. My steel broadheads were hand sharpened to a keen edge.

I practiced with my gear daily until I felt I was in tune with it.

On opening morning of turkey season, I spotted two big tom turkeys following a hen through the woods. I knew the toms would follow that hen anywhere, so I tried to call her in with hen talk. She did come in, but the two gobblers hung up 25 yards away. They strutted in circles and gobbled for 10 minutes. Their iridescent feathers glowed in the sunshine as they marched in step and turned around in unison.

However, they never came any closer to me, and the hen left when she tired of the game. The toms followed her as if being towed on an invisible string. They were still strutting and gobbling as they went out of sight.

Although I didn't get a shot, something good had happened that morning. My friend, Gary, was right when he said, “You cannot buy the simple satisfaction of making your own bow. Stepping into the woods with a self-bow is like stepping back in time.”

I liked the primeval feeling of hunting with a self-wood bow. Hunting with a primitive bow is very basic hunting. I felt as if I were



The author's archery gear: Osage self-bow and self-nocked, cedar arrows fletched with natural wing feathers from turkeys and wild geese

traveling a faint path that few hunters have traveled lately. The footprints on this path were left by hunters long ago. I knew I needed to walk softer, get closer, truly be a hunter, as in days long past.

A couple of mornings later, I ambushed a group of wild turkeys traveling along an old, two-track trail. A huge tom with what looked like a big paintbrush for a beard was following three hens and a young jake down the trail. Although the jake was a legal bird, I let it pass by my blind at 5 yards. I'd try for the big gobbler.

One of the hens high-stepped it just a little as she passed. That's all it took for that wise, old tom to leave the trail and cut through the brush to pass by 15 yards out. When he hit an opening, I clucked to him. He stopped, cocked his head sideways and stared hard in my direction. At the shot, he ducked his head and ran straight away, going like a racehorse. The shot had been close, but not close enough.

I hung my head. Any primitive hunter would have taken the easy shot at the close bird and dined on turkey that night. Greed had caused me to create a harder shot at a so-called "trophy" bird ... and go hungry.

My failures continued. One morning, I called in a nice jake to 20 yards (my self-imposed outside limit when hunting with the primitive bow). When he got spooky and turned to leave, I tried to salvage the situation—and missed again.

Okay; lesson learned. It was time for a reality check.

A True Art Form

Although I was determined to continue hunting with my wooden bow, I realized the need to slow down and hunt within the limits of my primitive equipment—and my own abilities—in order to be successful with my "simple" self-bow.

Well-known self-bow bowyer Dean Torges once wrote, "Simple means uncomplicated but hardly translates to 'easy.' Simple is achieved only with great difficulty. Archery with the wooden bow is not supposed to be easy; it's supposed to be simple."

I vowed not to shoot another arrow until I had a close-range bird in front of me that had no clue I was there; a bird I felt I couldn't miss. And when I thought about it, I realized those are the same basic principals for ethical hunting with any bow and arrow.

Sometimes, patience and persistence work together. A few days later, with my two-week turkey season nearing an end, I watched a group of four jakes wander into a clearing 80 yards away from my blind. A few sweet yelps from my handmade box call got their attention.

DEFINING 'TRADITIONAL'

➤ Respected biologist, writer and traditional bowhunter Jay Massey once noted that, "most archers fit into one of two groups: the 'romanticists' and the 'realists.' The romanticist responds to a fanciful, ancient song and is attracted to a more primitive form of archery. Realists see things from a practical viewpoint and are more goal oriented and competitive."

By this definition, I guess I'm a romanticist. —DQ

Slowly and cautiously, they circled around, as if looking for the hen they had heard but almost afraid to approach her for fear of the wrath of a mature gobbler. I silently waited with my best broadhead-tipped arrow on the string. Every time they appeared to lose interest, I'd call softly.

Pretending to be feeding, they slowly worked within bow range looking for the hen. Like a motionless predator, I waited for my chance. When the first jake stepped into my shooting lane at slam-dunk range, I confidently drew the Osage bow, touched anchor and smoothly released a lethal shaft. My spring turkey season was over.

Making, shooting and hunting with your own handmade primitive bow bring a satisfaction that can't be realized any other way. You see, a self-bow used to be a living thing—growing in summer, laying dormant in winter, swelling with humidity, shrinking with dryness. The bow stave sort of breathes the same air we do. Its grain and character grow as individually as a fingerprint. It has a heartbeat.

Even after the tree is cut, its pulse lives on and can be felt by those who lovingly work the wood. With use, it adapts to its user. Soon, it becomes much more than just a bent stick used to shoot an arrow: It becomes an extension of the hunter's mind. And while it doesn't happen right away, after using a self-bow for a period of time, you adapt to the primitive hunting style.

Walking through the spring woods with the wild turkey over my shoulder and my Osage bow in hand, I felt I had somehow just closed an invisible link in the chain that connects me with those hunters of long ago—primitive hunters whose lives depended on their simple archery equipment.

And it felt good. ■



Primitive archery may be less effective than modern, technologically advanced gear, but enthusiasts tend to achieve greater reward and satisfaction from practicing this hunting art form.

·SELF-RELIANCE·

BACKCOUNTRY POWER

HOW TO KEEP
YOUR ELECTRONICS
CHARGED WHILE
KEEPING YOUR
PACK WEIGHT LIGHT

By Brian Brown



LIKE MANY OUTDOORSMEN, I WELCOME ANY OPPORTUNITY TO HEAD FOR THE HILLS AND REMOVE MYSELF FROM THE HUSTLE AND BUSTLE OF DAILY LIFE.

Getting away from the electronic “leashes”—cell phones, television, computers and e-mail—that (unfortunately) occupy so much of our time these days is almost mandatory to maintain my sanity.

Yet, paradoxically, my pack would not be complete without a few select electronic devices for photography, lighting, navigation and even communication before I head afield. A camera, headlamp and GPS are always in my pack; and, when I dip off the beaten path for more than a couple of days, adding a cell phone or satellite communicator helps with peace of mind for both my wife and me.

Leaving home with these devices fully charged will last just so long once you start using them, so some planning is required. Otherwise, you will be packing a bunch of dead weight at some point during your trip. Simply packing spare batteries for each device may be an option, but they do add extra weight and clutter to your pack, especially on longer trips. Additionally, some devices feature a built-in battery, so swapping out batteries is not an option.

Recharging batteries in the field basically comes down to two options: an external battery pack or a solar charger. Not too long ago, external batteries were typically too heavy and bulky to pack very far, and solar panels were too large and inconsistent. But technology has come a long way, resulting in lighter and more-compact options that are also more efficient and reliable.

Goal Zero offers solar charging with both built-in and external batteries, making it mobile and versatile.

“Recharging batteries in the field basically comes down to two options: an external battery pack or a solar charger.”



The Goal Zero Guide 10 system, complete with a Nomad 7 solar panel and battery pack

pack is likely the best option for someone venturing into the backcountry for just a few days and is looking to recharge a device or two a couple of times before returning home.

The water- and shockproof and dust-resistant Xtreme model made by New Trent is rated at 12,000 mAh—all for the reasonable price of around \$60. This unit has been recharging my camera, GPS, satellite communicator and cell phone for the past couple of years without any issues. Weighing only 11 ounces and roughly the same size as a typical cell phone, it's hard not to make room for the Xtreme in your pack for when you need extra power.

The Xtreme has a micro USB port for charging the unit and dual standard USB ports for charging your devices. These ports are protected by a sealed

Battery Pack

An external battery should be charged before you leave home. When an electronic device is drained, simply hook up the battery pack to the device via a USB cord and let it charge. There are a variety of options when it comes to deciding which battery pack will work best for you, because they vary in capacity, physical size and cost. Nevertheless, most can be found for under \$100.

These devices are rated by their capacities and are measured in milli-amp hours, or "mAh"—the higher the number, the greater the battery capacity. If you are only charging your phone or GPS a couple of times during a trip, a unit rated between 5,000 and 6,000 mAh will suffice. But if you are charging several devices or are recharging devices such as satellite phones, which require larger-capacity batteries, look for a battery pack with a rating of 10,000 mAh or higher.

Keep in mind that water and electricity do not "play well" together, so protect your battery pack from the elements or purchase a model constructed to resist water. An external battery

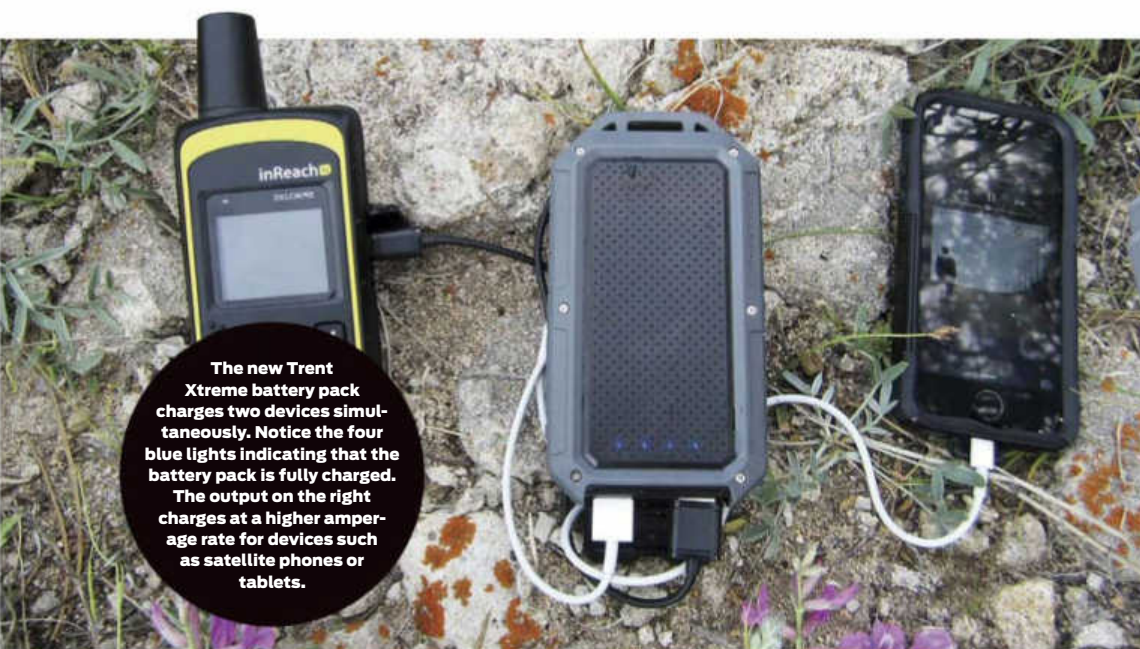
(right) Aside from charging the Guide 10 battery pack, there are outputs for charging a 12-volt and one USB output. Additionally, the panel has a "chain" input so you can use several panels in a series for faster and high output.

(below) Notice the four removable AA batteries within the Guide 10 battery pack. These can be removed and used in any device. The Guide 10 also includes an adapter to convert the batteries to AAA if most of your devices use those. However, this will reduce the battery pack's total capacity.



door that blocks out water and dust and is wrapped in rubber "armor" to protect it from drops and spills.

Operation is simple: A single button indicates the remaining battery capacity and begins the charging process. The unit automatically turns off when the device being charged reaches 100 percent to avoid wasting any stored power. In good weather, this unit will recharge my phone up to six or seven times; in colder temperatures, this is somewhat reduced.



Two outputs. Notice the battery door with rubber to seal out the elements.



GET THE MOST FROM YOUR BATTERIES

- > Try to purchase devices that all use the same type of battery to reduce the different types of batteries you will need to carry with you in your backpack.
- > Replace or recharge all batteries before you leave home, and use lithium batteries when possible. Rechargeable batteries, especially the Enerloop brand, will save money over time but tend to have a lower output.
- > If possible, keep devices off or in airplane mode until you need them. Remove the batteries or even flip one battery around 180 degrees to avoid accidentally turning on the device. Opening your pack—only to see that your headlamp is on and its batteries are draining—is a bummer.
- > Turn electronic devices off while charging to speed up the recharging process.
- > When using a solar panel, it's best to charge a battery pack during the day and then charge your device(s) with the battery pack at night.

Because of the Xtreme's larger capacity, it needs to be charged at home and typically takes 10-plus hours to charge completely. However, it can be "topped off" in your vehicle via the cigarette lighter or USB port.

Solar Panels

There are a few options for solar panels: a stand-alone unit, a solar panel with a built-in battery pack and a system combining a solar panel with an external battery pack.

Depending on the amount of available sunlight, using a solar panel to directly charge a device can be problematic and cause varying power levels. This results in much longer charge times. However, a solar panel paired with a battery pack offers the ability to carry a smaller battery pack that can be recharged while in the field.

Obviously, using a solar panel is reliant on having sunlight, so depending on the weather and terrain, getting enough sun exposure on the panel may take some effort. It is best to set up the panel somewhere around camp where it will be in the direct sunlight for the majority of the day. Then, charge individual electronic devices at night. Some people even hang the panels off their backpacks while hiking around, allowing them to charge throughout the day.

A solar panel can be bulky and somewhat fragile, so take care when packing it. And, while using it around camp, be careful not to crush or damage its photocells or coatings.

Most of the panels designed for backcountry use will be a compromise of size and weight for the performance, but they are more than capable of providing power for the

minimal amount of electronics needed. This system is best for someone who will be living off the grid for a while but who still needs to recharge devices several times.

The Goal Zero Guide 10 system consists of the Nomad 7 solar panel combined with the Guide 10 battery pack. What makes this system unique is that the battery pack actually consists of four AA batteries. Consequently, not only can it charge your electronics via a USB cord, its batteries can also be removed and used in any device requiring an AA size. (Additionally, Goal Zero has included an adapter to convert the batteries to AAA.) Having the ability to use the batteries separately can be very handy, but the tradeoff is that it also limits the battery pack's capacity to only 2,500 mAh—which is only good for a full charge or two for most devices—and it needs to be recharged more frequently.

This system weighs just over a pound and a half and costs around \$120. If you do not need the separate batteries, the Goal Zero Venture 30 may be a better option. It features a sealed battery pack rated at 7,800 mAh and a price tag of around \$160.

Anker, SolarMonkey and Instapark, along with several other brands, offer similar products that might also fit your needs.

An external battery pack might be the best option for most trips, while having the option of adding a solar panel creates a system capable of providing plenty of electricity for almost any device. Packing a few modern conveniences in the backcountry allows me to "unplug" myself from the daily grind—and "recharge my own batteries" while off the grid. **MP**

· SELF-RELIANCE ·

DIY Space Heaters

STAY WARM WITH CANDLES
AND FLOWERPOTS

By Larry Schwartz

KEEPING WARM IN THE WINTER CAN OFTEN BE A CHALLENGE, EVEN IN THE CITY OR SUBURBS, ESPECIALLY IF THE TEMPERATURES DROP BELOW FREEZING FOR MORE THAN A DAY OR TWO (AS IT HAS FOR MUCH OF THE EASTERN SEABOARD IN THE PAST FEW YEARS). If you happen to have a basement, temperatures there will stay in the 50s or 60s, even if it is freezing outside. However, these extreme temperatures can get life threatening if the power goes out and you don't have a basement to retreat to.

Clearly, nobody likes to see their electricity bill go up because their heat pumps were not designed to work in freezing temperatures and aren't recommended north of the Mason-Dixon Line. So, what is a modern pioneer to do, especially if their homestead doesn't come with a fireplace?

The answer is: Get a space heater—one designed to selectively heat a single room (usually, a living room or bedroom).

All space heaters work on the same basic principle: They burn some kind of fuel to create heat, which is absorbed by some medium that then radiates it out into the room. For instance, potbelly stoves burn wood that heats up the cast iron stove, radiating heat into the room. Fireplaces burn wood that generates heat—which, in turn, heats the fireplace masonry and radiates it back into the room.

Our grandparents' cast iron radiators worked that way. Hot water circulated through the cast iron segments of the radiator and made them hot. The cast iron radiated the heat into the room. Gas-based buddy heaters also work in a similar manner. Gas from a propane canister burns and creates a flame. This flame heats a ceramic element, which gets red hot and radiates the heat into the surrounding air.

Electricity or gas—both options can get expensive. We all know what our electricity costs, and those little, green gas canisters can get expensive if the stove runs for several hours or days.

Fortunately, there is an easy and cost-effective approach to taking the chill out of your rooms, even when the power goes out—flowerpot space heaters. These heaters require items you probably already have around the house: candles and pottery.

“All space heaters work on the same basic principle: They burn some kind of fuel to create heat, which is absorbed by some medium that then radiates it out into the room.”



What You Need

You don't need a lot of materials and equipment—and absolutely no tools—to make your flowerpot space heater. All you need are the following simple materials:

- Two unglazed terracotta flowerpots from your local gardening shop or home improvement store. One should be smaller than the other; the smaller one should be able to fit inside the larger one with a ½-inch to an inch between the two pots. I use 8- and 10-inch pots;
- Four or more tea candles or pieces of a full-length candle cut into pieces between a ½ and 1 inch long;
- A metal cooking tray to put the candles on;
- A metal rack or grill that is wider than the larger flowerpot.
- A small ball of aluminum foil.

Put it Together

To assemble your heater, follow these steps:

- Place the tea candles in the center of the metal tray.
- Light the candles.
- Place the metal rack on the metal tray to make a stand the flowerpots can rest on.
- Center the smaller pot over the candles so their heat can be concentrated.
- Push the ball of aluminum foil into the opening of the smaller flowerpot to block air from escaping from the hole.
- Center the larger flowerpot over the smaller one. Centering it will ensure you have enough air gaps on all sides to allow even distribution of the hot air that will spill out from the smaller pot.

How It Works

As the candles burn, the heat from their flames rises into the chamber formed by the smaller flowerpot. This causes a draft that pulls the cooler air in the room over the lip of the metal pan and up into the small flowerpot.

Once inside the smaller pot, the air is trapped by the aluminum foil plug in its top. As the air moves around in the smaller pot, it gets hotter and hotter, heating both itself and the clay walls of the pot. As the air reaches its hottest point, it starts to spill out under the rim of the pot and flows up into the gap between the smaller and larger pots. The air in the larger pot is heated by both the hot air from the smaller pot and the heat radiating from the wall of the smaller pot. When the hot air reaches the top of the larger pot, it spills out through the hole in the top and into the room.

As long as the candles are burning, the convection flow of air between the small and large pot will continue to push hot air to the outer pot, which acts like the radiators discussed at the beginning of this article. The large pot should be hot to the touch and radiating heat within 15 minutes. However, because the outer pot will continue to warm the room after the candles go out, be careful when you touch it.



All you need are a few simple items to make your pottery space heater.



Center as many candles as you want to use in the metal baking pan. Light the candles.



Next, put the metal rack on top of the baking pan to provide a foundation for the flowerpots.

Use a piece of aluminum foil to plug the opening in the smaller flowerpot and place the pot in the center of the rack.



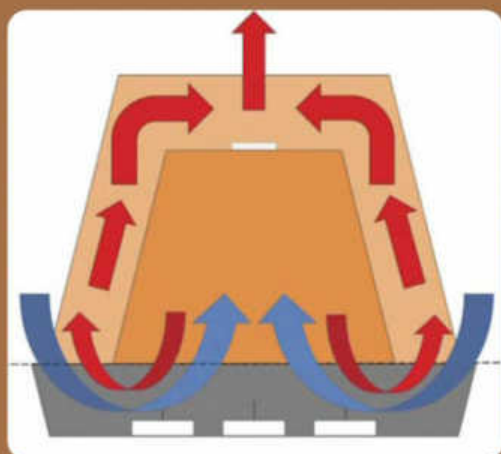
Place the larger flowerpot over the smaller pot, leaving equal spacing on all sides to provide optimal air circulation. Your flowerpot space heater is now ready to use. If you need to move it, do so slowly and carefully, making sure not to spill any of the melted wax.



The candles that burn the best are white with no additives (such as coloring or perfume). Avoid other candle types if you want to maximize the heat they generate.



You can increase the heat output by putting more candles in the center or by placing a second ring under the gap between the two flowerpots.



Heat from the candles in the bottom pot causes an up-draft, which pulls the cooler air from the room under the pots and up into the smaller pot. As the air heats up, it flows down and then up into the gap between the pots and out into the room.



Although the simple design—with everything stacked on top of each other—works fine, you can make it easier to use by setting the rack on some low stands. This allows you to easily move the pan that holds the candles in order to replace or add more without taking everything apart.

Variations on a Theme

There are many different variations on this basic candle heater. A simple search on YouTube will provide you with dozens of videos. Additionally, there are three main ways to improve on the basic design:

The first variation is to redesign the way you distribute the candles. Keeping a core set of candles (three or four) in the center of the system is essential, but you can also try adding two to four more, evenly spaced, around the perimeter between the two pots.

The second approach makes it easier to use the heater. Instead of resting every piece on top of the other in a stack, place the rack on top of four small glasses or two pieces of wood that raise it higher than the tray you put the candles in. With the rack supported by something other than the tray, you can now move the tray in and out from under the pots, making it much easier to light and replace the candles.

The third alternative is to use different heat sources. In addition to tea candles, you can also use things such as jar candles, jellied alcohol (Sterno, for instance) or small alcohol burners (commercial or toilet paper in a can with isopropyl alcohol in it). They are all short enough and burn well for a long time.

A Word to the Wise

As a closing thought, keep in mind that although these candle heaters, in all of their variations, are simple in design, they still have open flames and generate a great deal of internal heat. For these reasons, be sure to keep safety in mind.

Do not touch the pottery when it has been in use, because it will be very hot—hot enough to give you a first-degree burn. As the candles burn, the wax will melt and can spill if moved quickly, so wait until it has cooled and solidified before moving the pan the candles sit in, or move it very slowly. Be sure to put it on a stable platform to avoid knocking it over. Keep it away from flammable items such as draperies or newspapers. **MP**



· BUSHCRAFT ·

DIY Leather Back Quiver

By Larry Schwartz



HOW TO MAKE YOUR OWN LEATHER BACK QUIVER—QUICK AND SIMPLE

SOLDIERS, HUNTERS, INDIGENOUS PEOPLES AND TARGET ARCHERS HAVE USED THE BACK QUIVER FOR CENTURIES. In addition to being a great way to keep your archery gear together and readily available, it is also easy to make with a few simple tools and a little bit of up-front planning. Back quivers come in all sizes and designs but, essentially, any back quiver is just a leather tube with a strap to hold it on your back and shoulder.

Step 1: Start With a Pattern

Unless you have been making an item such as this for a long time, it is best to think through the work so you know what it will look like and how it will be put together. The best and easiest way to do that is to start with a pattern.

For this project, I wanted to make a simple back quiver that would hold a couple of dozen arrows. I normally hunt with a mix of broadheads for big-game animals such as deer or bear; flu-flu arrows with small-game heads for squirrels, rabbits or birds; and plain arrows with field points for stump shooting to keep my eyes and mind sharp while still hunting through the woods.

To dress it up a little bit and make it ready to accept some beading, I added a panel at the top and bottom of the quiver body. It would also have a small pouch for holding a spare bowstring, some small tools for adding nock sets, and some glue and repair parts for my arrows and bow.

Once I knew what the design would look like, I traced it out on some sheets of brown paper I made by taking apart paper bags from the grocery store and taping them together. Because this type of paper is stiff but still easy to work with, it was perfect for use as a pattern. I could cut out the pattern and then tape together the pieces I would lace together once the pattern was transferred to the leather I was using.

After they were taped together, I could see what the quiver would actually look like and if it would hold the number of arrows I wanted. I could then identify any small changes I might want to make to the design. After making them, I used the pattern as my template and transferred it to my leather pieces.

“Leather-making projects don’t require buying special tools ... I use things I already have at home ...”



(from left) The front of the quiver body has holes for the top and bottom leather panels along the top and bottom, holes for joining the two quiver body panels along the sides, and two holes in the middle for the accessories pouch. The back of the quiver body has holes for the top and bottom leather panels along the top and bottom, holes for joining the two quiver body panels along the sides, and holes for attaching the shoulder strap for right- or left-handed shooters. The leather panels that go on the quiver body have holes along their edges that coincide with the holes in the quiver body pieces. The oval bottom piece has holes for lacing it to the bottom of the quiver body. The accessories pouch has holes for lacing the oval and half-oval pieces together to form a pouch with a flap that is secured with leather lacing.

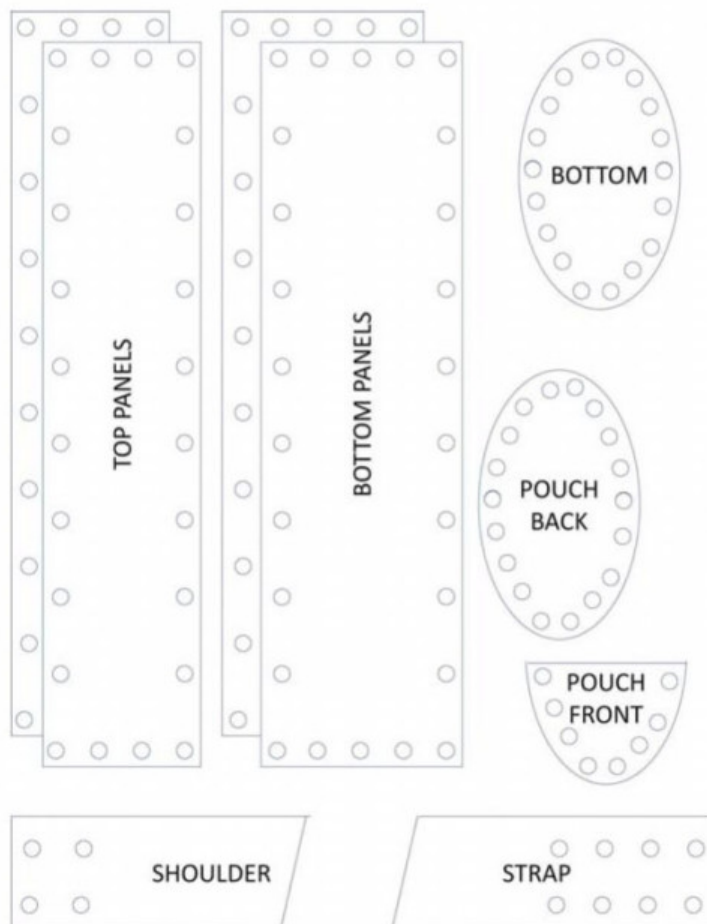
Step 2: Determine What Materials You Need

Another benefit of using a pattern is that it can help you figure out what materials you need. Because I didn't have a large enough single leather piece for the quiver body, I modified the design so I could lace together two smaller pieces. The rest of the materials I needed were the leather laces to put it all together and some basic tools for cutting the leather and punching the holes for the lacing.

I used 8-ounce vegetable-tanned leather for this project. An ounce of leather is $\frac{1}{4}$ inch thick, so the 8-ounce leather is $\frac{1}{2}$ inch thick—thick enough to hold up to field use but also pliable enough to flex across my back, which would help keep the arrows in place if I bent over. (There are few things more embarrassing than reaching down to pick something up and hearing a bunch of aluminum arrows clattering to the ground—of course, alerting any animals within earshot.)

My lacing was $\frac{1}{8}$ -inch-wide 72-inch lace. This quiver took five lengths of lacing. I trimmed the ends to a point, making it easier to thread them through the holes in the leather. When lacing them through the holes, I made sure they lay flat; otherwise, some laces would have the smooth side out, while others would have the rough side out.

Leather-making projects don't require special tools. And because I am frugal (some





When you add the leather panels to the quiver body pieces, start with a knot on the rough side and loop in and out, ending with a knot on the rough side.

might even go so far as to say “cheap”), I use things I already have at home for my simple leather-working tools—a metal straightedge, X-Acto knife and utility knife from my home toolbox to lay out and cut the leather piece patterns. I also use a hammer from the same toolbox and a .22 long rifle shell casing to cut the holes in the leather for the lacing.

Step 3: Transfer the Design

It was now time to transfer the design to the leather. I placed the cutout pattern pieces on top of the leather pieces and fixed each one in place with masking tape (masking tape doesn't leave any residue when it is removed). To make sure all the pieces fit, I taped every piece of the pattern to the leather before I began tracing or cutting anything. Then, using a finepoint pen or a pencil, I traced the pattern onto the leather, making sure to also mark the center of each hole from the pattern.

“The best and easiest way ... is to start with a pattern.”

Step 4: Cut Out the Pieces

Using a sharp knife (such as a box-cutter or X-Acto knife), I carefully cut out each piece of leather. I made sure the cuts were all at right angles to the leather surface—otherwise the pieces would not fit together snugly, leaving gaps or uneven edges. I cut down through the finished side of the leather. Using the metal straightedge as a guide helped make these cuts at right angles and ensured that the lines stayed straight.

Step 5: Attach the Top and Bottom Panels

The first step in assembly was adding the top and bottom panels to the front and back pieces of the quiver body.

I placed one of the top panels on the front quiver body piece. The holes on the right and left edges of the panels and the body pieces were for lacing the body pieces together, so I left them open.

I then laced the bottom row of holes in the top panel, starting with the second hole on the left and ending with the next to last hole on the right. I tied a knot in one of the laces, trimmed its end to make a point and ran it from the back (rough side) of the body piece up through the second hole and back down into the third hole. Then, I laced up through the fourth hole and into the fifth hole, repeating that pattern until I got to the end.

I tied a knot on the back side of the body piece and cut off the remaining lace to use for the next row. Next, I repeated the steps above on the top row of the bottom panel. However, I didn't lace the bottom row on the bottom panel until I put on the bottom of the quiver.

I attached the top and bottom panels to the back piece of the quiver body the same way as I did for the front piece. All four panels were now attached to the quiver body pieces.

Step 6: Assemble the Quiver Body

To assemble the body of the quiver, I placed the two pieces of leather to which I had just attached the panels next to each other so that the holes along their long sides lined up with each other. Next, I took a full-length lace (72 inches), trimming its ends to a point. Starting with the second hole up from the bottom on each piece, I ran one end of the lace through the hole on the back side of the leather. I then pulled the lace through and brought the ends together to make them the same length.

I crossed the laces over and ran the ends through the next hole up on the opposite side—just as I would with a new set of shoelaces. I twisted the lace so that the smooth side was showing and then repeated the process until I reached the top. I tightened the laces to take up any slack and made sure the smooth side was showing on each “x” of lacing. I finished this side by tying a knot in the lace on the back side of the leather.

To attach the other side of the two pieces of the quiver body, I shaped them into an oval and repeated the process, starting at the second hole up from the bottom—but at first, I only laced it up about four or six holes.

I was now ready to attach the bottom piece and the shoulder strap.

Step 7: Attach the Shoulder Strap and the Quiver Bottom

To attach the shoulder strap, I first had to decide if the quiver would go over my right or left shoulder. (If you want the strap over your right shoulder, attach it to the holes located at the top left and the bottom right of the smooth side of the back the quiver. For the left shoulder, use the other set of holes.)



When you're done lacing the two halves together, finish the laces off with a square knot on the rough side.

I attached the top of the strap using the same “x” pattern I used for the sides of the quiver body, making sure to put the smooth side of the strap toward the smooth side of the quiver body when I laced it in place. When the long strap was attached, I checked to see that it was pointing up and away from the quiver.

To attach the bottom of the shoulder strap, I ran the lacing through the two holes at the bottom of the quiver and then threaded them through the bottom of the strap, again using the “x” pattern. I chose a set of holes that would make the strap the right length for me.

Attaching the bottom of the quiver was relatively straightforward: I aligned the oval bottom piece so that the smooth side was out and the wide ends of the oval lined up with the seams on the quiver body. I tied a knot in the end of a lace, running it through the hole in front of the quiver body and then into the hole on the oval bottom piece. I kept running the lace through the quiver body and the bottom piece until I was all the way around the oval. Then, I tied a knot in the lace inside the quiver to secure it in place.

After I added the bottom of the quiver and the shoulder strap, I finished lacing the sides (as I did for the first side of the quiver body) and tied it off on the inside of the quiver. The final step: I laced the top row of holes around the top of the quiver.

Start your lacing a few holes in from where the two pieces of the quiver body come together. This will make it easier to run the lace through the holes when you get closer to the end.



SIMPLE LEATHER-WORKING TOOLS

You can go out and buy a set of leather-working tools at most craft stores, or you can find them online from several websites. Just do a Google search for "leather-working tools," and you will get several hits.

Fortunately, for most basic leather projects, all you need are the following items; chances are, you probably already have these somewhere in your house:

- > a sharp knife, such as a utility knife with replaceable blades;
- > a straightedge ruler for transferring your design to the leather. A metal ruler is a good choice, because you can run your knife down its edge when you make your cuts;
- > a device for punching holes in the leather. This can be a tool designed for that purpose, a leather awl found on many pocket knives or a simple .22 Long Rifle shell you can hold with your fingers and tap with a hammer to punch the hole into the leather; and
- > a pair of needle-nose pliers, if needed, for gripping the end of the lacing and pulling it through the holes.

After you finish lacing on the bottom, you can finish lacing together the quiver body.

Step 8: Add the Accessories Pouch

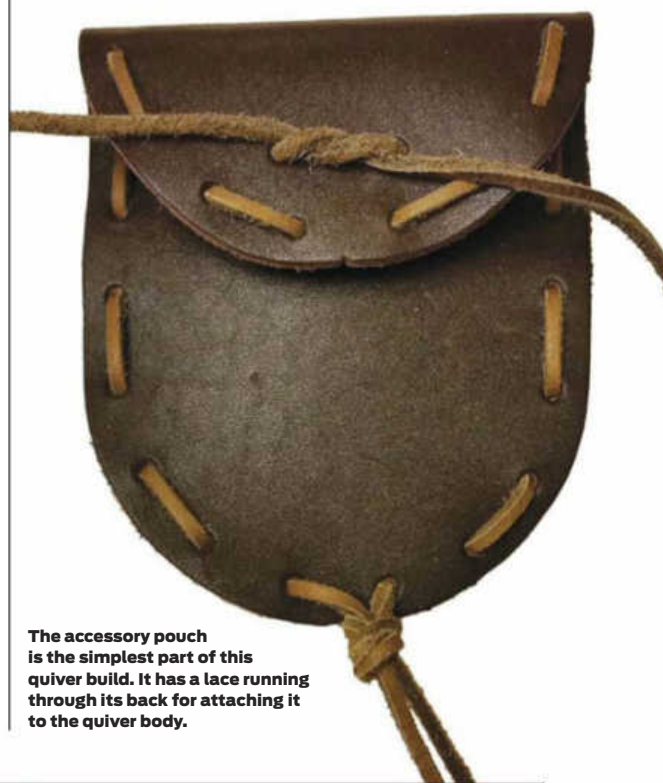
The accessories pouch was made of two pieces—one oval shaped and the other one half an oval. I laced the half-oval piece on top of the full oval, using the same in-and-out lacing pattern I used to attach the panels to the quiver body pieces at the beginning of my project. I ran a piece of lacing through the two holes on the center of the half oval. These were then used to hold the flap down when the flap is closed.

Go Shoot Those Stumps

Congratulations! You are probably a few hours into your own quiver project by now. You have most likely backed up a few steps and tried something different, and you are feeling a mixture of frustration and pride. That is all part of the creative process and a big part of the satisfaction that comes with it.

You are making something with your own hands from your own design. Your finished quiver will be a useful part of your life as a hunter and archer.

When you are done, put some arrows in your quiver, grab your bow, and go shoot some stumps! **MP**



The accessories pouch is the simplest part of this quiver build. It has a lace running through its back for attaching it to the quiver body.

Bill Negley (1914–2006)

Pioneer Dangerous-Game Archer > By Darryl Quidort



Bill Negley may be the most unknown and underrated archery hero of all time. His dangerous game bowhunting feats, accomplished 60 years ago, rival or surpass those of the well-publicized archery greats.

Some say his feats of hunting the world's most dangerous game with a recurve bow and arrow will never be equaled—both for legal licensing reasons and because the hunting situation in Africa today is far more restricted than in the 1950s and 1960s, when Negley pursued Africa's dangerous “big five” (elephant, rhino, leopard, Cape buffalo and lion).

Negley was a quiet, humble oilman from San Antonio, Texas. He also oversaw major oil operations in Latin America. He was an attorney, served in the Texas legislature and was president of the Southwestern Talc Company and director of Natural History for the Witte Museum, among other official titles.

He also loved hunting and fishing. Big-game fishing was his specialty. As a hunter, he traveled the world and collected big-game animals with a rifle for museum specimens; as an accomplished rifleman, he developed two new calibers of high-powered rifles.

However, Negley eventually chose to put aside his rifles forever. He felt that modern guns had developed to the point of being too highly proficient for killing animals.

Negley then took up bowhunting. During the 1950s, there was very little information available on archery or bowhunting. So, without any guidance, he struggled to become proficient with a bow.

The \$10,000 Elephant

In 1956, Negley's friend, Bill Carpenter, bet him \$10,000 to \$1,000 that he couldn't kill an adult elephant with a bow and arrow. Both men had previously hunted and killed elephants with rifles and knew the difficulties involved.

Negley had to make some arrangements before he could accept the wager. He needed to find a qualified PH, excellent trackers and, most importantly, a place where he could legally pursue elephant with a bow and arrow. At that time, bows and arrows were not accepted as viable hunting tools; in fact, it was not legal to hunt with a bow in many places. Howard Hill was the only person at that time who had ever taken an elephant with a bow.

With only months to prepare, Negley began training immediately to work his way up from his 55-pound recurve to a weight of 100 pounds, which he hoped would be heavy enough for elephant.

He contacted Fred Bear at the Bear Archery Company in Michigan. After hearing his story, Bear agreed to make Negley a series of bows—each 10 pounds heavier than the previous version—until he reached a weight suitable for elephant. By moving up 10 pounds every month, Negley hoped to gain the strength needed to pull the heaviest bow.

The hunt finally took place in February 1957 in Nairobi, Africa. Negley got his chance on the morning of February 27th after several unsuccessful stalks.

He watched as a herd of seven cow elephants and three good bulls started for a stream to drink. The bank was about 10 feet high where the cows crossed the stream. Finally, the three bulls started for the stream in the same place.

Because there wasn't enough cover for stalking, Negley needed to wait until all three bulls went over the bank before quickly moving up for his shot. As the last bull elephant in line went down over the bank, Negley ran up to the bank just above him. He raised up to shoot, and the elephant paused and looked back. Negley had been worried that the 102-pound bow might be a problem in an actual hunting situation, but it drew back, seemingly with no effort.

He later wrote, “The arrow hissed like a knife stab into a watermelon as it disappeared almost to the feathers and high in the lung area, about two feet behind the shoulder.”

The \$10,000 elephant was killed with a single arrow—without rifle intervention.

Negley's \$250 Nairobi hunting license was good for two elephants. As if to prove the first one wasn't an accident, he killed a second, larger, bull elephant the very next day. This time, his 30-yard shot hit too far forward (on the front leg), and the heavy arrow didn't penetrate the chest cavity.

It was then up to the trackers to follow the bull until it was located for another shot. Negley stalked into a dense patch of brush for the shot; again, the arrow hit too far forward. It took four arrows to bring the elephant down. Although Negley admits his shooting should have been better, both

elephants were taken by bow without the aid of any firearm.

After that, Negley returned to his quiet life. In fact, he quit hunting and gave away his archery equipment.

Africa's Big Five

Nine years later, Howard Hill's protégé, Bob Swinehart, publicly announced he was going to Africa to kill the African big five with a bow and arrow. This announcement must have brought out the competitive nature in Negley: He began to train again for pulling the heavy bows. This time, he intended to do something no one else would even try: He intended to take all of Africa's dangerous game without rifle backup.

Negley succeeded in taking a rhino and a leopard, followed by a Cape buffalo and finally, a huge African lioness. All were excellent trophies—except the leopard. He freely admitted it was small and was shot from the vehicle, which he was not proud of (although it was perfectly legal).


As of October 31, 1966, Negley considered himself the first to take Africa's big five with a bow and arrow. He had done it without any backup rifle behind him. However, when he got out of the bush four days later, he learned that Swinehart had completed his own quest just a few days before and had become the first to take the big five with a bow. Negley was understandably disappointed but was always careful to acknowledge Swinehart as being first and himself second.

Negley returned to Africa again and again. He had good hunts and bad hunts, hunts during which he took world-record trophies and hunts during which he was mauled by a lion. His fifth (and last) hunt took place in 1984. His impressive total was five elephants, two rhinos, two Cape buffalo, one lion, one leopard and one hippo—all taken fairly by bow and arrow.

Controversy

In 1983, Negley heard convincing evidence that both Swinehart and Hill's elephant kills had been fouled by a rifle shot. If that is true, they cannot be claimed as true bow kills.

Was Negley actually the first to take an elephant and the rest of Africa's big five with a bow and arrow? All three men—Howard Hill, Bob Swinehart and Bill Negley—are now deceased, so we may never know. **MP**

A photograph of a forest scene. Tall, slender trees with green and yellowing leaves stand in a misty or foggy environment. Sunlight filters through the canopy, creating a soft, golden glow and visible rays of light. The foreground is filled with dense, low-lying vegetation, including grasses and small plants, also bathed in the warm light. The overall atmosphere is serene and ethereal.

*"Your greatness is revealed not by the lights that shine
upon you, but by the light that shines within you."* —RAY DAVIS

“Whatever you are, be a good one.”

—ABRAHAM LINCOLN

